# RICHARDSON HIGHWAY NORTH POLE INTERCHANGE

State Project Number: 62184
Federal Project Number: ACNH-0A2-4(26)

## ENVIRONMENTAL ASSESSMENT

Submitted pursuant to 42 U.S.C. 4332 (2)(c)

By the
U.S. Department of Transportation
Federal Highway Administration
And
State of Alaska
Department of Transportation and Public Facilities:

Recommended for Public Availability By:

6/14/04 Date — Regional Preconstruction Engineer

Approved for Public Availability

6/17/04 Date — Division Administrator, Federal Highway Administration

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The Department of Transportation and Public Facilities (DOT&PF) proposes to reconstruct the Richardson Highway through a portion of North Pole, Alaska providing an interchange at Dawson Road and eliminating the cross highway traffic at the intersections of Fifth Avenue/Mission Road and Laurance Road. These intersections would be limited to "right-in and right-out" movements only. To facilitate traffic movement within the project corridor Dawson Road would be extended to Laurance Road and Mistletoe Drive would be extended.

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| D | Consultation & Coordination |
| E | USKH 2004. Richardson Highway, North Pole Interchange, Traffic Elements Final Report, prepared for ADOT&PF by USKH, Inc. and Kinney Engineering, April, 2004. |

## 1. PROPOSED ACTION

The Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Alaska Division of the Federal Highway Administration (FHWA), proposes to reconstruct the Richardson Highway in North Pole, Alaska (Figure 1) to provide a grade-separated interchange at Dawson Road. The highway would be reconstructed to cross over Dawson Road, providing for local traffic to cross unrestricted under the highway (Figure 2). The existing intersections at Fifth Avenue/Mission Road and Laurance Road would be restricted to right-turn-in and right-turn-out movements (Figures 3, 4 & 5).

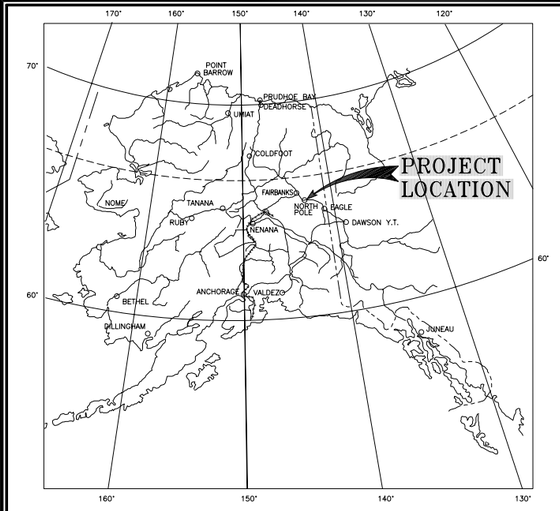
To facilitate traffic movement to and from the interchange and the existing road network the project would include the following:

- The Mistletoe Drive frontage road would be extended from Donner Drive to Dawson Road,
- Dawson Road would be extended to Laurance Road,
- A "grade-separated" under crossing at Fifth and Mission,
- A one-way frontage road between Mission Road and Badger Road,
- Eight-foot wide path on the roadway shoulders of the frontage roads for pedestrians and bicycles. This would be constructed on the south side of Saint Nicholas Drive between Santa Claus Lane and Dawson Road and on the north side of Mistletoe Drive between Dawson Road and Laurance Road.

The last three actions would be deferred to a later date if initial construction estimates for elements of the project exceed the available funding.

The proposed action would construct an interchange at the intersection of the Richardson Highway with Dawson Road. The Richardson Highway would be raised over Dawson Road on a bridge (Figure 7). Interchange ramp intersections would be controlled by traffic signals. Dawson Road would be extended south to Laurance Road. Mistletoe Drive would be extended from Donner Drive to Dawson Road completing the frontage road from Mission Road to Laurance Road. This action retains the existing right-turn-in and right-turn-out and eliminates left turn and cross traffic at the Fifth Avenue/Mission Road and the Laurance Road intersections with the Richardson Highway.

# VICINITY MAP





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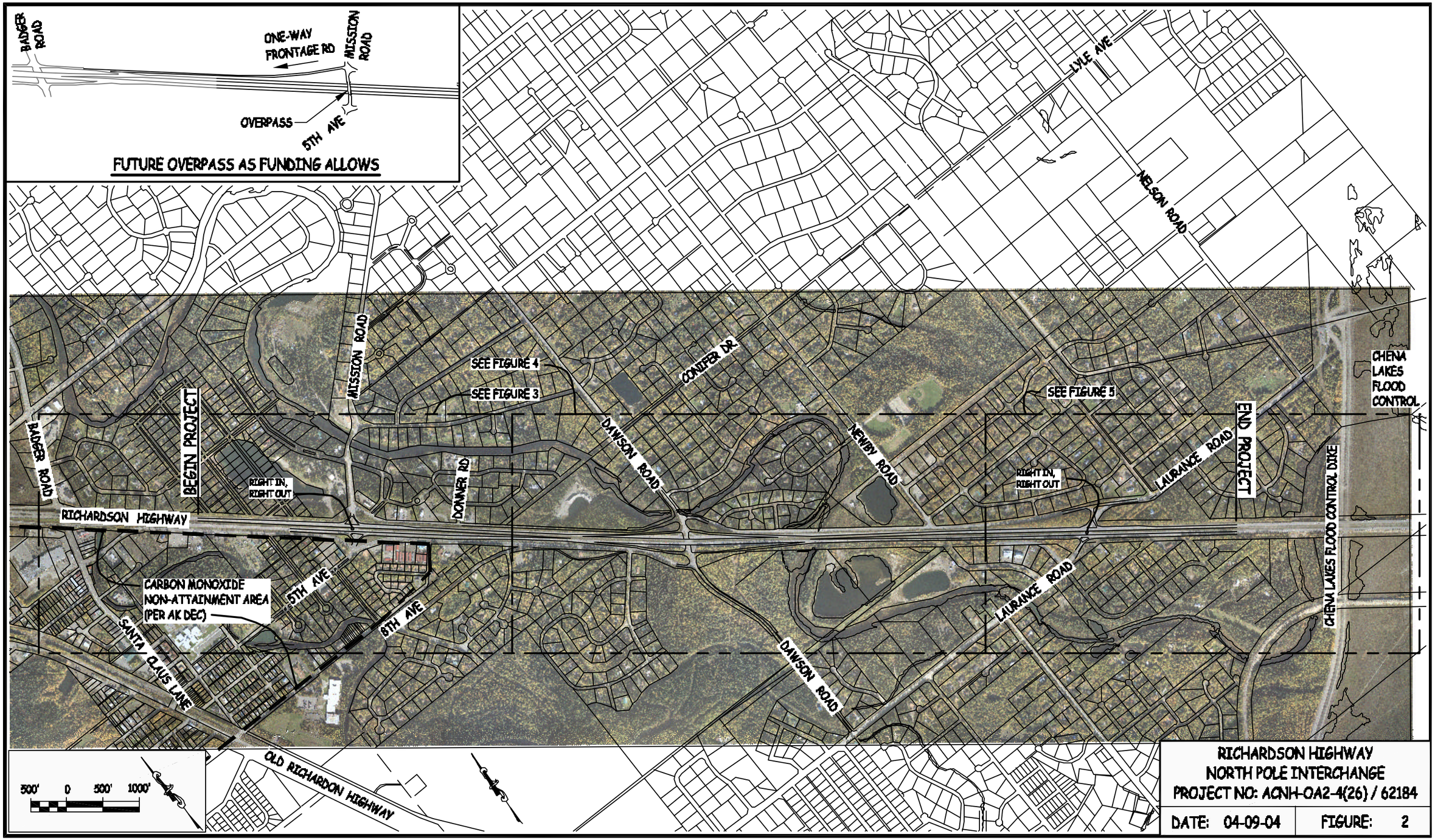
# Build Alternative

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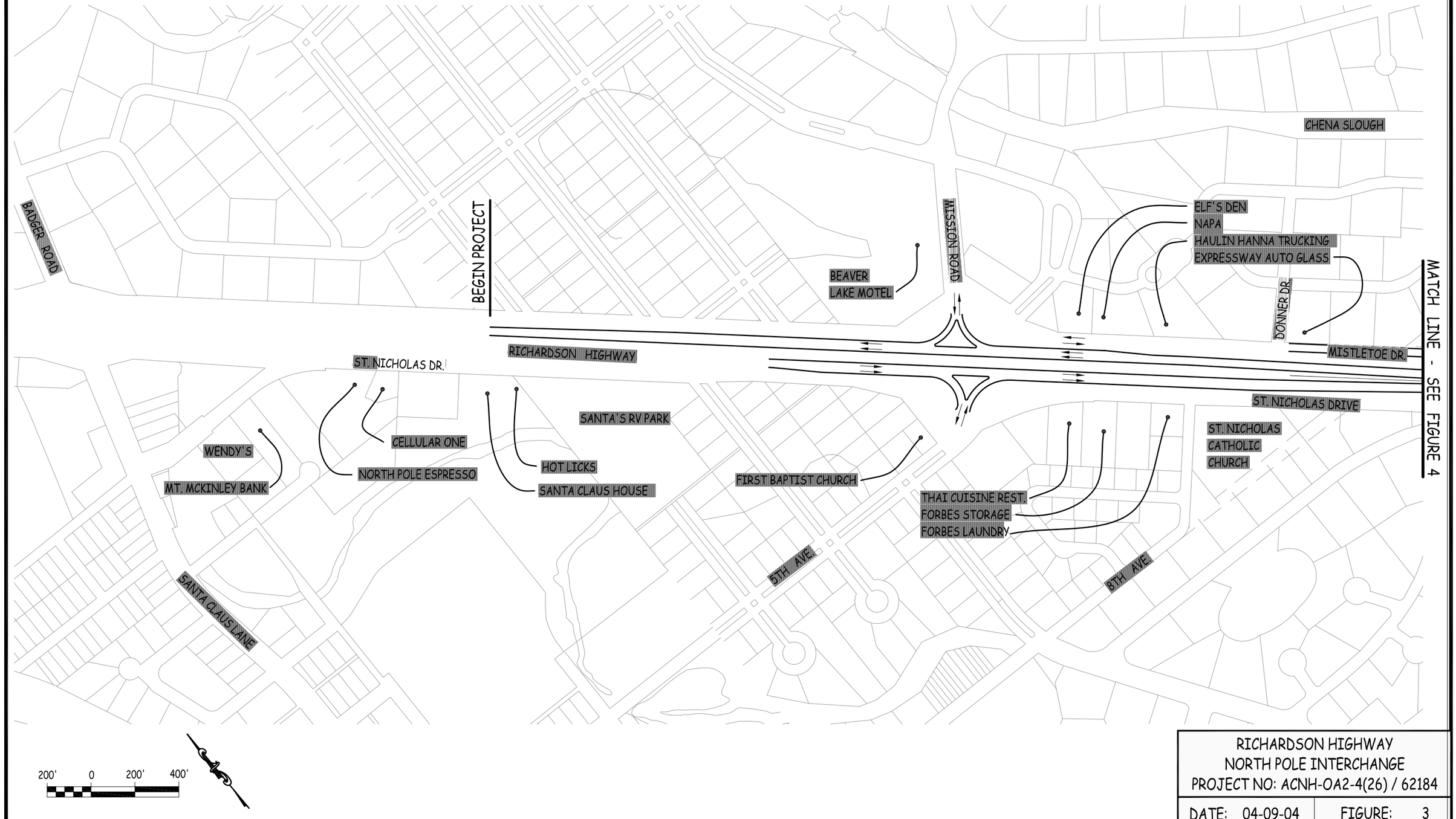
# BUILD ALTERNATIVE

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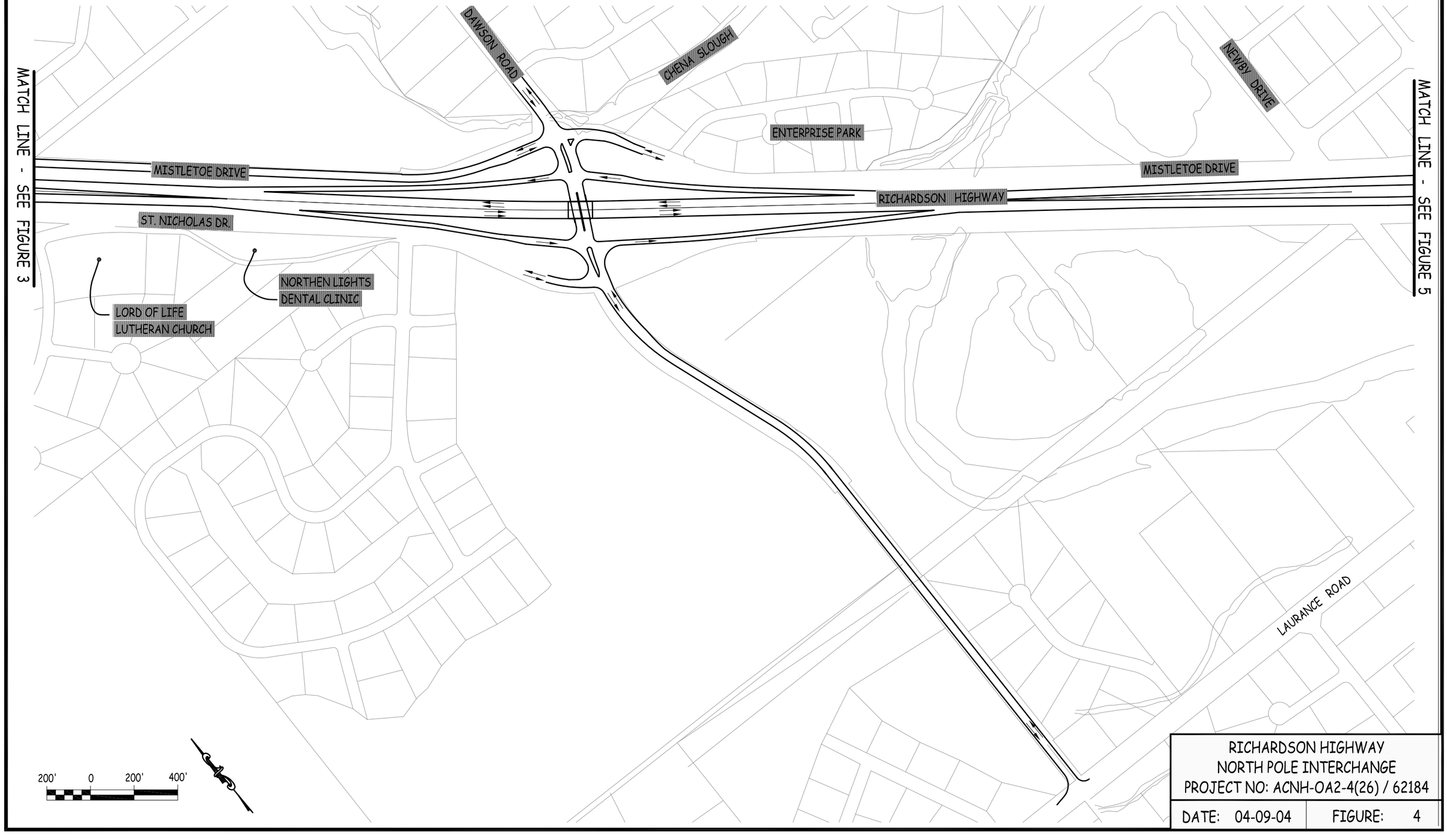
# BUILD ALTERNATIVE

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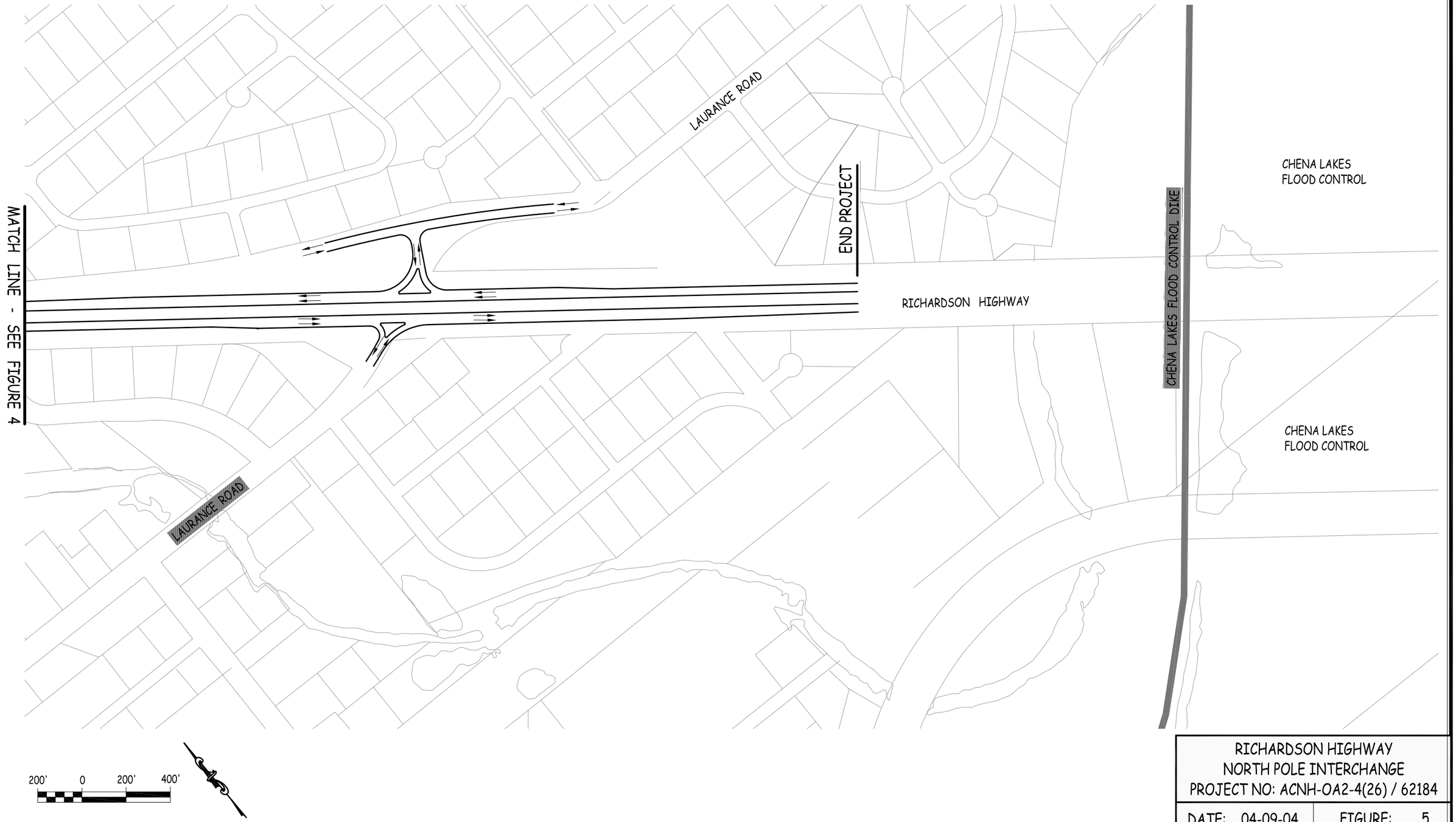
# BUILD ALTERNATIVE

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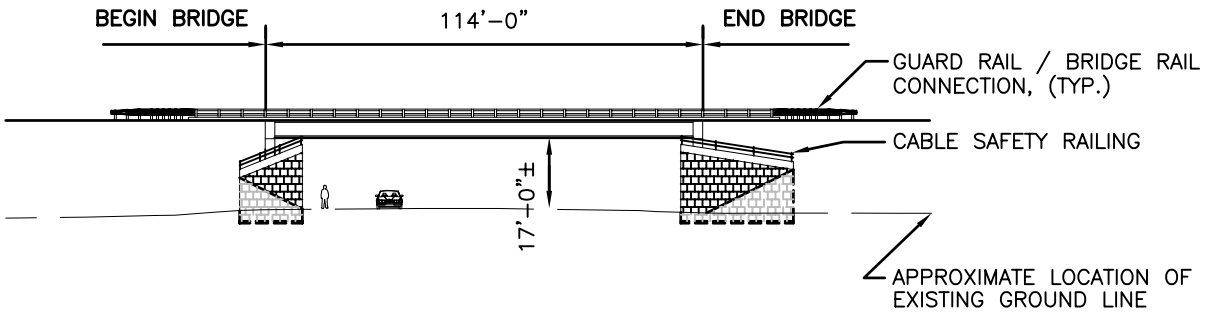
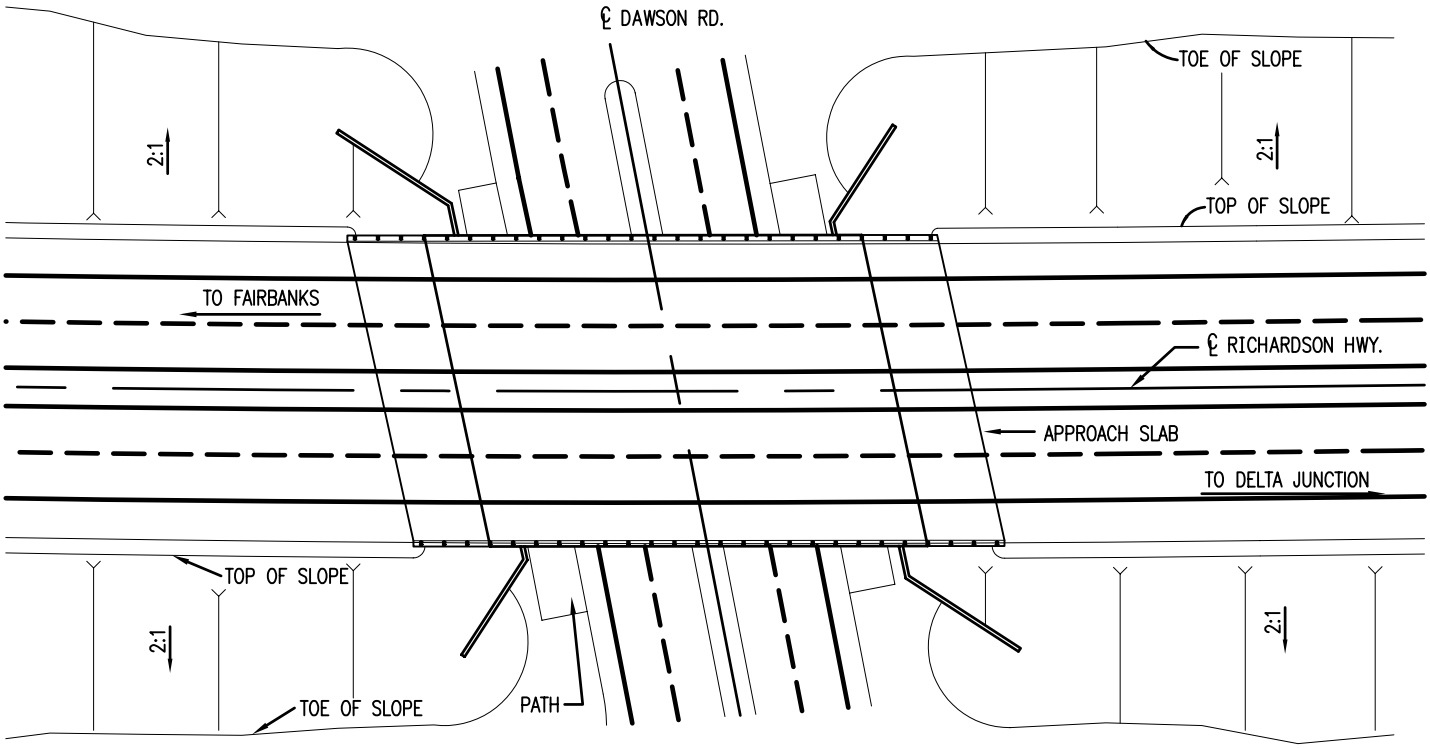
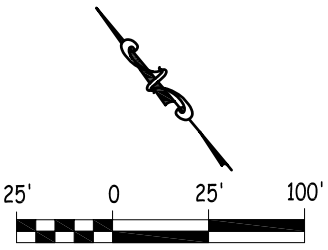
# BRIDGE DESIGN




## BRIDGE ELEVATION




## BRIDGE PLAN

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This section discusses the purpose and need for the proposed action and supports it with accident and traffic analysis.

## 2.1 PURPOSE

The purpose for the proposed action is to improve the safety for all types of traffic on, entering, exiting, and crossing the Richardson Highway at North Pole, Alaska (e.g. refinery fuel trucks, school buses, and private vehicles, pedestrians and bicycles). It would eliminate conflicts between slow-speed local traffic trying to cross the high-speed Richardson Highway by reducing the number of at-grade crossings.

The public outcry regarding high and severe accidents in the area prompted local governments to demand action by ADOT&PF:

- 1988. Fairbanks Metropolitan Area Transportation System (FMATS) endorsed the elimination of at-grade intersections in the project corridor
- 1992, 1993, 1994, 1997, and 1999. The City of North Pole passed resolutions requesting an interchange in the project corridor
- 2000 and 2001. The Fairbanks North Star Borough passed resolutions in support of the Richardson Highway North Pole Interchange
- 2001. The City of Fairbanks passed a resolution in support of the Richardson Highway North Pole Interchange

The Alaska Legislature also responded to the public outcry by approving a Guaranteed Anticipation Revenue Vehicle (GARVEE) bond package (House Bill 525 (SCS CSHB 525)) and referring it to the Alaska voters, who passed the bond issue in the 2002 statewide general election. (See Appendix E.) North Pole Interchange was the number two statewide priority in the 2002 voter approved Transportation Bond.

## 2.2 NEED

The safety record of the Richardson Highway through North Pole affirms public and official perceptions. The accident rate is above comparable statewide averages. The intersections of the Richardson Highway and Laurance Road and the Richardson Highway and Fifth Avenue-Mission Road have a high rate of severe accidents. Drivers crossing or turning left onto the highway at the intersections of Fifth Avenue/Mission Road, Dawson Road, and Laurance Road experience long delays. Public comment identified a concern that large vehicles (tanker trucks, motor homes, and school buses) queued in left turn pockets can make it difficult to see oncoming high-speed traffic.

During peak traffic hours, local drivers wait about one minute to cross the high-speed lanes of the Richardson Highway. By 2035 their wait will exceed five minutes. The delay to cross traffic represents an unacceptable level of service. The level of service for cross traffic at all three intersections is currently E or F and by 2035 all three will be at level of service F. The delay pressures drivers to take greater risks and to attempt to move into inadequate gaps, which leads to more accidents.

In the last five years there have been two fatal traffic accidents, one at Dawson Road and one at Laurance Road. As the local North Pole area population increases (it is projected to increase by 55% to 60% over the next 20 years) severe high-speed accidents will increase.

## 2.3 ACCIDENT ANALYSIS

A traffic report prepared by USKH, Inc., found that there were 80 accidents within the study area between 1997 and 2001. Seventy-two of the accidents occurred at, or were related to intersections, and the remaining crashes were single vehicle loss-of-control crashes that occurred on the Richardson Highway (Table 1).

| Intersection | 5-Year Average Entering AADT (1997-2001) | Number of Accidents (1997-2001) | Greater than Average Accident Rate? |
|---|---|---|---|
| **Richardson/5th/Mission** | **13,445** | **27** | **Yes** |
| Fifth/St Nicholas | 1,725 | 1 | No |
| Mission/Mistletoe | 1,200 | 0 | No |
| Richardson/Dawson | 11,880 | 12 | No |
| **Dawson/Mistletoe** | **1,667** | **4** | **Yes** |
| **Richardson/Laurance** | **12,360** | **26** | **Yes** |
| Mistletoe/Laurance | 5,840 | 2 | No |
| Total | | 72 | |

**Table 1- Project Accident Summary, 1997 to 2001** (USKH, 2004)

Right angle and left-turn accidents are very high at the Fifth and Mission, and Dawson intersections. Left-turn crashes involve vehicles turning left from the Richardson Highway onto the minor streets with vehicles from the oncoming Richardson Highway traffic. Severity is higher at the study locations than comparative statewide averages. Table 2 presents the dominant accident types and severity for the intersections.

| Intersection | 1997-2001 (Five Year Total) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Accident Type | | | | Severity | | | |
| | Right Angle | Left Turn | Rear End | Other | Fatality | Major Injury | Minor Injury | Property Damage Only |
| Richardson/ Fifth/ Mission | 12 | 6 | 1 | 8 | | 2 | **12*** | 13 |
| Fifth/St Nicholas | | | 1 | | | | | 1 |
| Mission/Mistletoe | | | | | | | | |
| Richardson/ Dawson | 7 | 1 | 3 | 1 | 1 | **1*** | 3 | 7 |
| Dawson/Mistletoe | 3 | | 1 | | | | | 4 |
| Richardson/Laurance | 18 | 2 | | 6 | 1 | 1 | **11*** | 13 |
| Mistletoe/Laurance | 2 | | | | | | 1 | 1 |

*These are higher than the statewide average. (USKH, 2004)

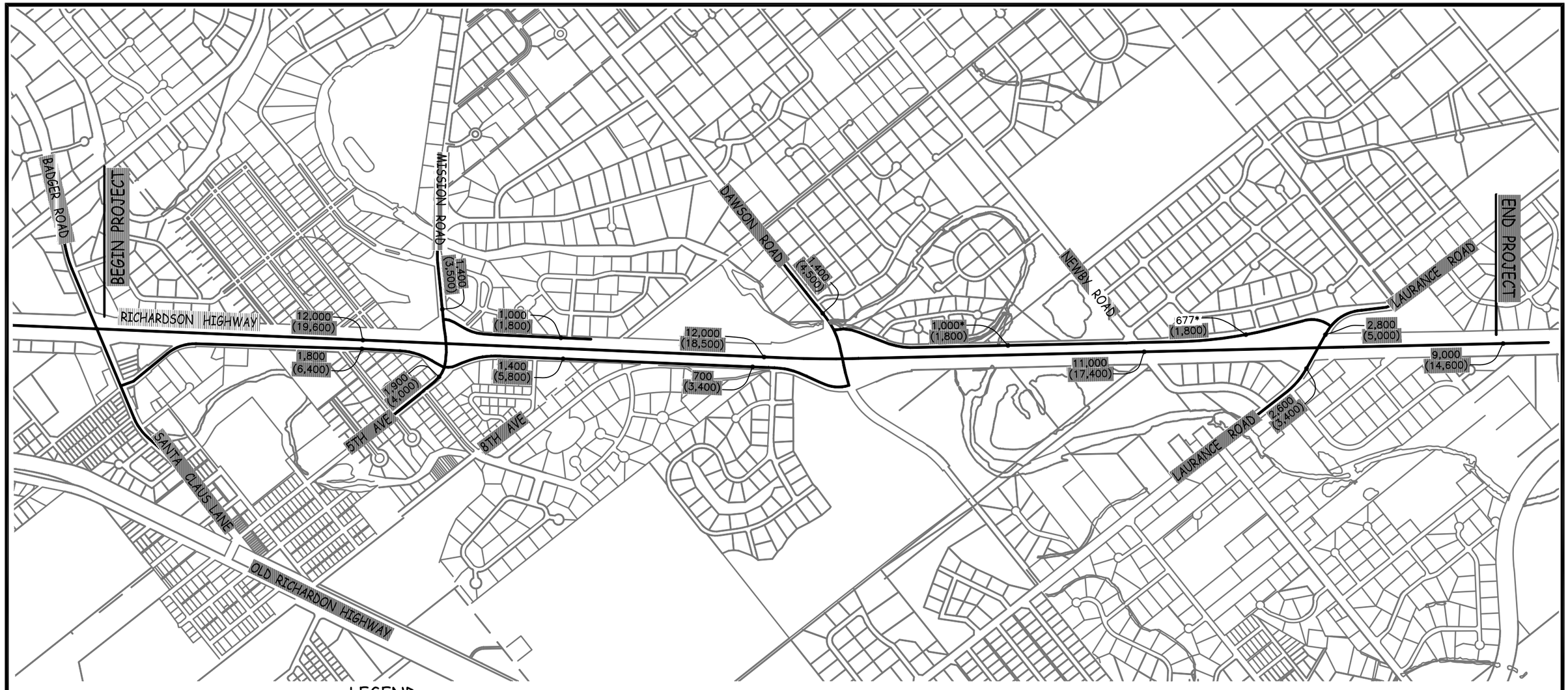
**Table 2- Crash Type and Severity, 1997 to 2001**

The Richardson Highway North Pole intersections have right-angle accidents that are much more severe than other similar locations in Alaska. This is due to the left turn of vehicles across on-coming high-speed traffic and the crossing of the highway by vehicles on Fifth Avenue, Mission Road, Dawson Road, or Laurance Road. The right-angle accidents in Table 2 are sometimes referred to as "T-boning" and occur when a high speed vehicle is unable to stop and crashes into the side of a crossing slow-speed vehicle. During the public review of this proposal, individuals testified that icy roads often exacerbate the difficulty of turning left and crossing the highway. The mix of vehicle types including double tanker trucks, and the difference in speed of local verses through traffic, presents the possibility of catastrophic accidents.

## 2.4 TRAFFIC ANALYSIS

The Richardson Highway serves two functions. One is to efficiently carry goods and services from the Alaska Highway to Fairbanks and beyond. The other function is to provide access to the surrounding communities. The Richardson Highway is free of signals between Airport Way in Fairbanks and Eielson Air Force Base, a distance of 21 miles. Traffic has increased from 1997 to 2001 and is projected to increase through 2035 (Figure 6). Providing for increasing traffic volume is not a problem in the project corridor, the issue is safety.

# 2001 AND 2035 PROJECTED TRAFFIC VOLUMES FOR EXISTING CONDITIONS




## LEGEND

| | |
|---|---|
| 12,000 | 2001 TRAFFIC VOLUME FOR EXISTING CONDITIONS |
| (19,600) | PROJECTED 2035 TRAFFIC VOLUME FOR EXISTING CONDITIONS |
| * | ESTIMATED VOLUMES |

460' 0 460' 920'

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## 3.0 ALTERNATIVE ANALYSIS

Alternatives were evaluated for the ability to improve safety for private vehicles, refinery double-tanker trucks, school buses, pedestrians, and bicyclists travelling on, crossing, and entering the Richardson Highway. Evaluation criteria also included the reduction of at-grade crossings of the Richardson Highway in the project corridor and conformity with public and legislative goals.

### 3.1 NO BUILD ALTERNATIVE

There would be no changes in the existing at-grade intersections along the Richardson Highway through North Pole. Traffic would continue to have a higher than average accident severity. Serious accidents would continue to increase as the traffic volumes increase.

The no-build alternative would not achieve the local government, legislative, or voter approved goals for traffic safety improvements in the project corridor.

The no-build alternative will remain a viable alternative until a formal decision is made by FHWA regarding this proposed project.

### 3.2 ALTERNATIVES CONSIDERED AND NOT ADVANCED

A number of alternatives developed as a result of engineering analysis and public suggestions failed to advance for further consideration because they did not meet the purpose and need for this project. Some readers will want to review the results of these analyses, which are presented below. Others may prefer to skip this portion and focus on the build alternative by turning to Section 3.3

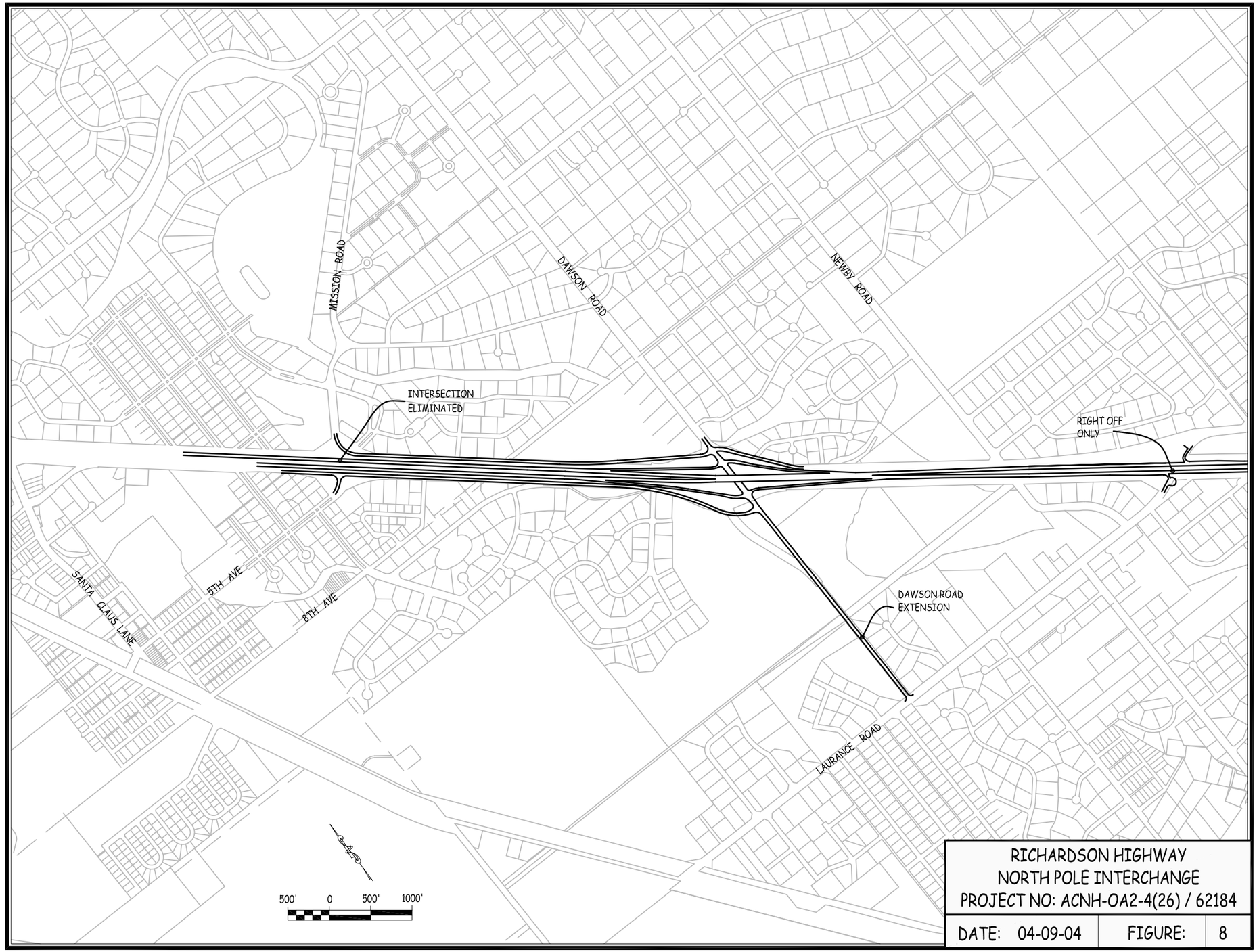
- Dawson "B" interchange
- Fifth Avenue single point interchange alternative
- Fifth Avenue split diamond alternative
- Eighth Avenue alternative
- Fifth Avenue Signal Alternative
- "Michigan Left-Turn" or "Crossover" alternative

The above alternatives did not advance because they failed to provide the safety improvements and did not meet the evaluation criteria for this project. The specific reasons for their elimination are described below.

#### 3.2.1 Dawson "B" Alternative

This alternative would consist of an interchange at the intersection of the Richardson Highway with Dawson Road. Dawson Road would be extended south to Laurance Road. Fifth and Mission intersection would be eliminated. A one-way frontage road would be constructed to connect Mission Road to the Badger interchange off ramp. North frontage roads would be continuous from Mission Road to Laurance Road. South frontage roads would be continuous

# Dawson "B" Alternative

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Interchange at Dawson Road. Dawson Road extended south to Laurance Road. 5th and Mission intersection were eliminated. North frontage roads were continuous from Mission Road to Laurance Road. South frontage roads would be continuous from Santa Claus Lane to Dawson Road. Laurance Road intersection would allow only right turns leaving the Richardson Highway.

- Increased safety by separating conflicting traffic movements - The Richardson Highway would be elevated to allow traffic at Dawson to cross underneath the highway.
- Reduced crashes at 5th-Mission, and Laurance intersections by prohibiting high-risk movements.
- Supported the long-term goal to eliminate at-grade crossings along the Richardson Highway in order to increase safety and efficient traffic flow.
- $16,800,000 estimated construction cost
- $1,200,000 estimated right-of way cost with three residential and one commercial relocation expected.

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from Santa Claus Lane to Dawson Road. Laurance Road intersection would allow only right turns leaving the Richardson Highway.

The interchange would differ from Dawson "A" by straightening Dawson Road on the section-line easement. Eliminating the curve on Dawson would results in a realignment of Mistletoe requiring acquisition of two homes and additional right-of-way from homes in the Enterprise Park subdivision (Figure 8).

This alternative was not advanced for the following reasons:

- It required the acquisition of two homes and property in Enterprise Park along Mistletoe frontage road. Public concern was expressed about property acquisition in the Enterprise Park subdivision at the northwest intersection of Dawson and Mistletoe frontage road.
- It did not present a functional advantage over the Dawson "A" alternative considering the added property acquisition expense.
- It reduced community connectivity with the elimination of Fifth & Mission access and cross traffic.

### 3.2.2 Fifth Avenue Single Point Interchange Alternative

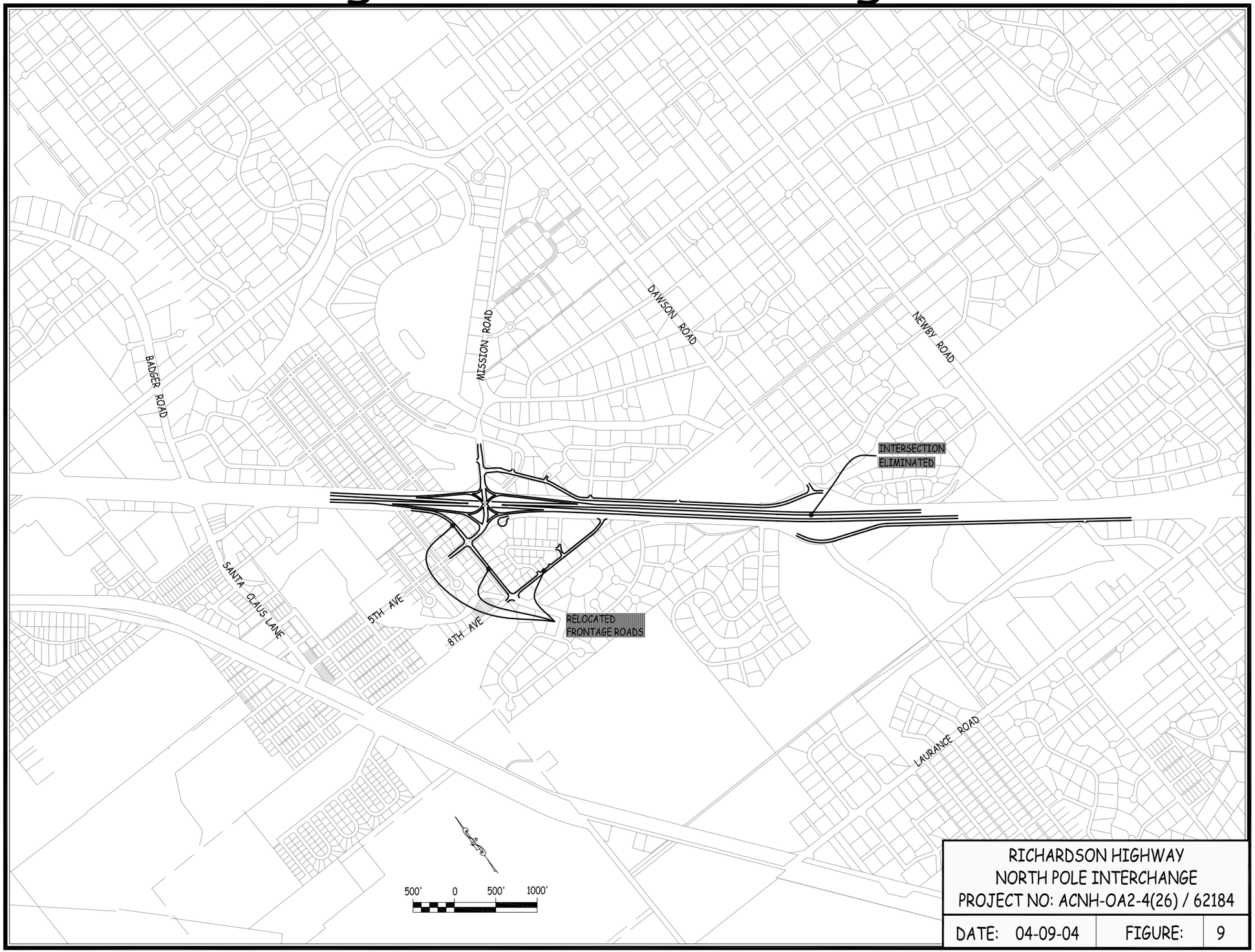
A Fifth Avenue-Mission Road interchange would consist of a single point interchange with the Richardson Highway passing over Fifth and Mission Roads. Dawson Road intersection would be eliminated. North Frontage roads would be continuous from Mission Road to Laurance Road. South frontage roads would be continuous from Santa Claus Lane to Laurance Road.

Mistletoe Drive and St. Nicholas Drive would be extended to provide frontage road access from Fifth Avenue-Mission Road to Laurance Road. St. Nicholas Drive would be re-aligned west of the interchange to follow the Blanket Boulevard alignment to 8$^{th}$ Avenue. At the intersection of 8$^{th}$ Avenue and Blanket Boulevard, the frontage road would turn north and reconnect to the existing St. Nicholas Drive. Mistletoe Drive would be re-aligned at Donner Drive to follow the Blitzen Drive alignment to Mission Road (Figure 9).

This alternative was not advanced for further consideration for the following reasons:

- This alternative would reduce left-turn and right angle crash frequencies and severity's at both Fifth Avenue-Mission Road and Dawson Road intersections through conflict elimination, separation and control. However, rear-end accidents are predicted to increase at this location.
- It requires the frontage roads to be relocated through the Baker, Beaver, and Kris Kringle Subdivisions and Joy Eden Estates to allow queuing for through and left turning traffic onto the Richardson Highway. A preliminary right-of-way cost was estimated at $739,000.
- It did not meet the minimum interchange spacing of 1 mile in urban areas, and would cause weaving problems for vehicles entering and exiting the Richardson Highway between the Badger Road Interchange and the proposed interchange at Fifth and Mission.
- It has higher construction costs because of the longer bridge required for a single point urban interchange.
- It failed to improve access for fire and rescue services.

# 5th Ave. Single Point Interchange Alternative

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Interchange at 5th /Mission intersection. Dawson Road intersection would be eliminated. North frontage roads would be continuous from Mission Road to Laurance Road. South frontage roads would be continuous from Santa Claus Lane to Laurance Road.

- This alternative would be located so close to the Badger interchange that vehicles entering the Richardson Highway from Mission Road interfere with the vehicles exiting the Richardson Highway to Badger Road.
- Increased safety by separating conflicting traffic movements - the Richardson Highway would be elevated to allow traffic at 5th and Mission to cross underneath the highway.
- Required frontage roads near the 5th /Mission intersection to be relocated through the Baker, Beaver, and Kris Kringle Subdivisions and Joy Eden Estates for proper queuing lengths and left turns onto the Richardson Highway
- Supported the long-term goal to eliminate at-grade crossings along the Richardson Highway in order to increase safety and efficient traffic flow.
- $19,200,000 estimated construction cost
- Estimated right-of way cost of $739,000. No residential or commercial relocations expected.

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- The alternative did not address double-tanker traffic entering and exiting the Richardson Highway from North Pole area refineries.
- It did not improve safety at the Laurance Road intersection.

### 3.2.3 Fifth Avenue Split Diamond Alternative

The Fifth Avenue-Mission Road interchange would consist of a split diamond interchange configured with an eastbound entrance ramp and a westbound exit ramp. The Richardson Highway would go over Fifth and Mission. The ramp intersections at Fifth Avenue-Mission Road would operate under signal control. Ramp intersections at Badger Road are currently being redesigned with round-abouts in a different project. The westbound exit ramp and the eastbound entrance ramps would be moved to complete the split diamond interchange system. Mistletoe Drive and St. Nicholas Drive would be extended to provide frontage road access from Badger Road to Laurance Road. The section of Mistletoe Drive between Badger Road and Mission Road would be one-way westbound and the section between Mission Road and Donner Drive would be re-aligned to the north of Blitzen Drive. St. Nicolas Drive frontage road access would be re-routed south on Fifth Avenue to Blanket Boulevard, east to 8$^{th}$ Avenue, and north back to St. Nicolas Drive (Figure 10).

This alternative was not advanced for further consideration for the following reasons:

- The additional traffic volume that would use Badger Road Ramps would require two-lane circulatory modern roundabouts with two lane approach and departure lanes to maintain acceptable operations.
- It required the frontage roads at Fifth and Mission be relocated farther away from the proposed ramps to provide for proper queuing length for the northbound left turns onto the Richardson Highway and intersection separation between the frontage roads and ramps.
- The interchange ramp intersections were not designed to handle double tanker trailers.
- Higher maintenance costs accrued due to the signalization of the interchange.
- It did not improve safety at the Laurance Road intersection.

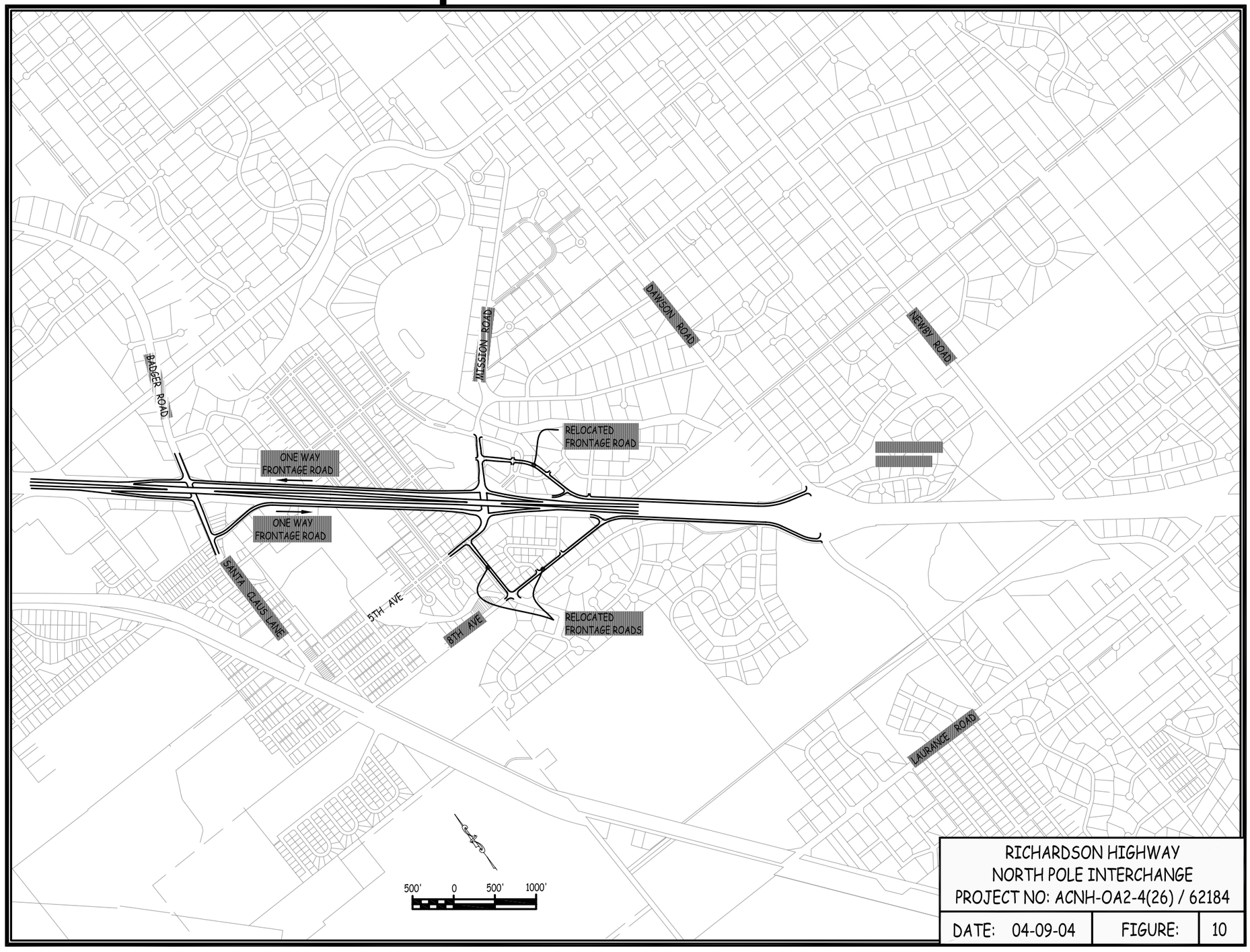
### 3.2.4 Eighth Avenue Alternative

This alternative would construct a “tight diamond” interchange at the intersection of the Richardson Highway with Eighth Avenue. Eighth Avenue would be extended to the north across Chena Slough, to Dawson Road. The Fifth and Mission intersection would be eliminated. The Dawson Road intersection would be eliminated. A one-way frontage road would connect Mission Road to the Badger Road interchange off ramp. North frontage roads would be continuous from Mission Road to Laurance. South frontage roads would be continuous from Santa Claus Lane to Laurance Road (Figure 11).

This alternative was not advanced for further consideration for the following reasons:

- A right-of-way impact of $1,500,000, acquiring three homes and one commercial business is excessively costly and requires unnecessary relocations.
- It required frontage roads to be relocated through the Baker, Beaver, and Kris Kringle Subdivisions and Joy Eden Estates.
- It failed to improve access for fire and rescue services.
- It did not provide for double-tanker traffic.

# 5th Ave. Split Diamond Alternative

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- The Split diamond interchange utilized the existing Badger/Santa Claus interchange west bound entrance and east bound exit ramps. A new interchange located at 5th/Mission consisted of east bound entrance and west bound exit ramps
- A westbound one way frontage road would be constructed between Mission and Badger
- The existing two way St. Nicholas Drive frontage road would be changed to a one way eastbound frontage road between Santa Claus Lane and 5th Ave.
- Frontage roads between Badger and 5th Ave would carry more traffic than the Richardson Highway.
- The added traffic at the Badger Road interchange would cause the planned single lane roundabouts to operationally fail.
- Dual lane roundabouts or ramp signals would be needed at the Badger/Santa Claus Lane interchange.
- This alternative supported the long-term goal to eliminate at-grade intersections along the Richardson Highway.

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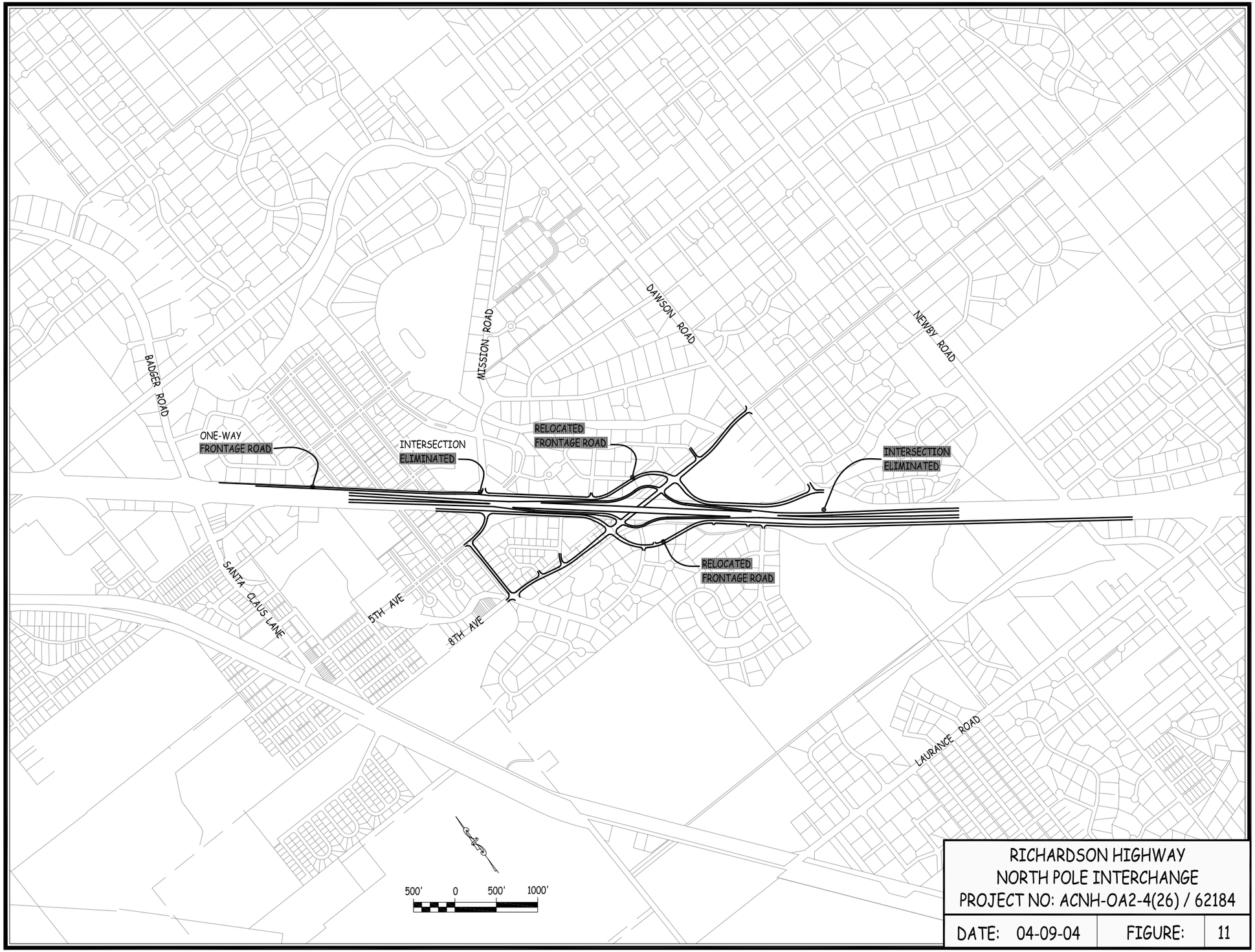
# 8th Ave. Alternative

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Interchange at the intersection of 8th Ave. The 5th and Mission intersection would be eliminated. The Dawson Road intersection would be eliminated. A one-way frontage road connected Mission Road to the Badger interchange off ramp. North frontage roads would be continuous from Mission Road to Laurance Road. South frontage roads would be continuous from Santa Claus Lane to Laurance Road.

- Increased safety by separating conflicting traffic movements - The Richardson Highway would be elevated to allow traffic at 8th Avenue to cross underneath the highway.
- Increased traffic on 8th Avenue.
- Required frontage roads to be relocated through the Beaver, Kris Kringle, and Baker Subdivisions and Joy Eden Estates.
- Supported the long-term goal to eliminate at-grade crossings along the Richardson Highway in order to increase safety and efficient traffic flow.
- Had the most right of way impacts of any alternative.
- $20,500,000 estimated construction cost.
- Estimated right-of way cost of $1,500,000. Three residential and one commercial relocation would likely be required.

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- It would have brought more traffic to 8th Avenue and probably would need to be reclassified from a minor collector to a major collector.
- The skew of 8th Avenue forced the ramps and frontage roads to curve away from the interchange impacting more private land.
- It did not improve safety at the Laurance Road intersection.

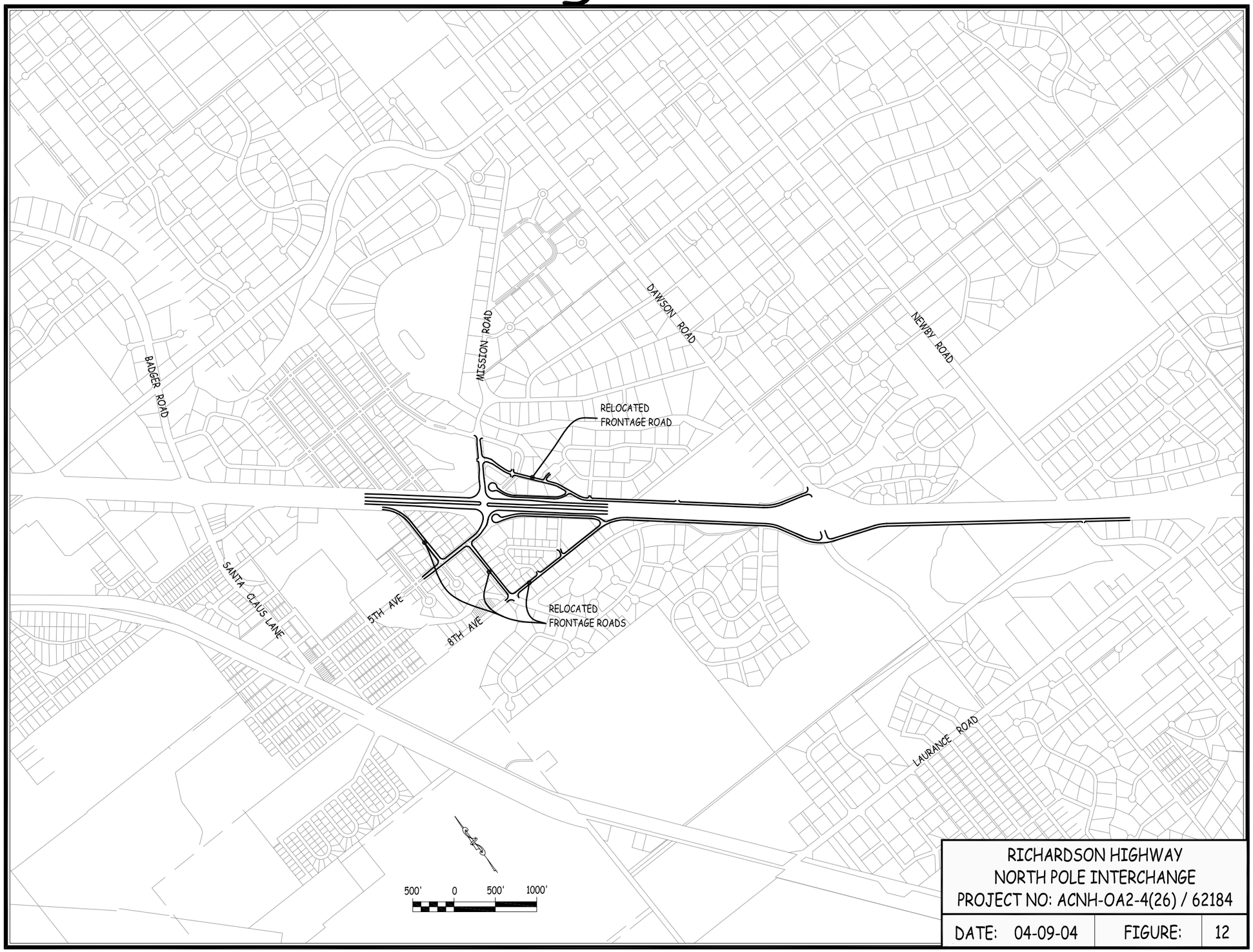
### 3.2.5 Fifth Avenue Signal Alternative

This alternative would have installed a traffic signal on the Richardson Highway at the Fifth Avenue-Mission Road intersection. South frontage roads would be continuous from Santa Claus Lane to Laurance Road. North frontage roads would be continuous from Mission Road to Laurance Road (Figure 12).

This alternative was not advanced for further consideration for the following reasons:

- It did not increase safety.
- It was not as effective as a grade separatedinterchange for reducing accidents. While the frequency of left-turn and right-angle accidents would decrease, the number of severe rear-end accidents would increase.
- Vehicles waiting at the signal would increase ice fog, decrease visibility and further increase the risk of rear-end accidents.
- It had a right-of-way impact of $500,000.
- It required frontage roads be relocated through the Baker, Beaver, and Kris Kringle Subdivisions and Joy Eden Estates for proper queuing length for the northbound left turns onto the Richardson Highway.
- It did not support the long-term goal of eliminating at-grade crossings on the Richardson Highway.
- The intersection did not satisfy signal warrants now or in the future.
- It created a long delay for Richardson Highway traffic, especially if one allows for the time pedestrians need to cross the highway.
- It did not improve safety at the Dawson and Laurance Road intersections.
- Stoplights would require moving the frontage road back to provide a safe and functional queuing distance which would increase impacts to the Chena Slough.
- It did not respond to the voter approved North Pole Interchange proposal.

# 5th Ave Signal Alternative

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|---|---|---|

Signalized intersection at the 5th/Mission intersection. South frontage roads would be continuous from Santa Claus Lane to Laurance Road. North frontage roads would be continuous from Mission Road to Laurance Road.

- Required frontage roads around the intersection to be relocated through the Baker, Beaver, and Kris Kringle Subdivisions and Joy Eden Estates for proper queuing lengths and left turns onto the Richardson Highway.
- Did not support the long-term goal to eliminate at-grade crossings along the Richardson Highway in order to increase safety and efficient traffic flow.
- Was not as effective for reducing accidents as a grade separation (interchange). While the frequency of left-turn and right angle accidents would decrease, the number of severe rear-end accidents would increase.
- Queued vehicles at the signal would increase ice fog. This would decrease visibility and increase the risk of rear-end accidents.
- $6,000,000 estimated construction cost including frontage roads.
- Estimated right-of way cost of $500,000. No residential or commercial relocations were anticipated

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| Interchange | Traffic Signal |
|---|---|
| $18 to 25 million | $6 million for one light |
| A long-term solution | An interim measure that delays a long-term solution |
| Alleviates delays on both cross and through traffic | Reduces peak hour cross traffic delays |
| If centrally located, it reduces accidents at Mission/Fifth, Dawson and Laurance Road intersections | Delays through traffic on Richardson Highway |
| Reduces more accidents than would a traffic signal | Increases potential for rear-end and angle accidents, especially when visibility is poor, ice fog is present, or slippery road conditions exist |
| Reduces severe accidents | Increases severe rear-end accidents by 25% |
| Reduces all accidents by 60% | Reduces intersection and angle accidents by 60% |
| | Not expected by high speed drivers on this section of the Richardson Highway |
| | Requires frontage road relocations to provide safe queuing |
| | Requires relocation of three homes and one commercial business |
| | Traffic signal intersections have the highest accident rates in Interior Alaska. |

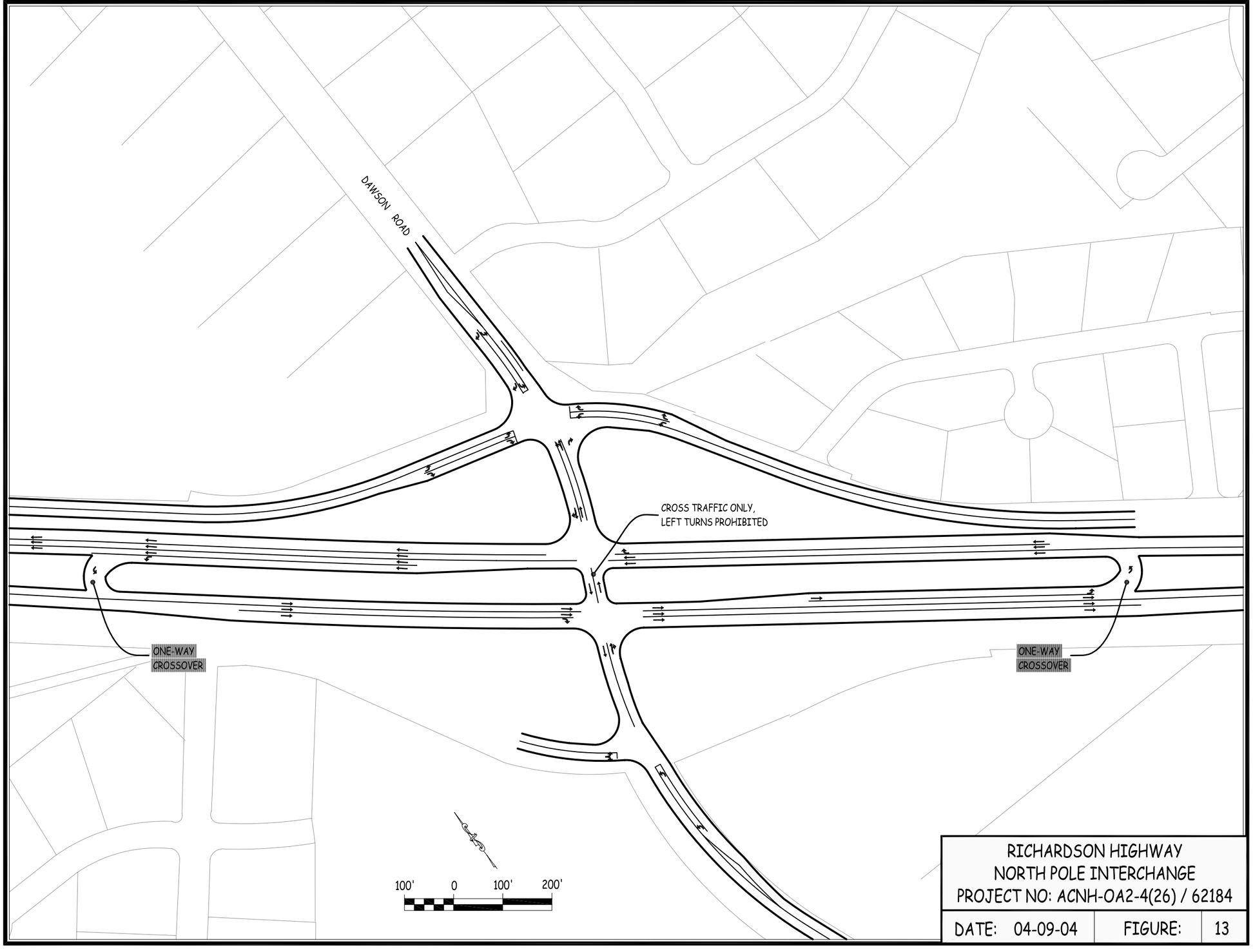
**Table 3. Interchange compared to Traffic Signal.**

3.2.6 Michigan Left Turn Or "Crossover" Alternative

Replace existing at-grade Dawson Road and Richardson Highway intersections with at-grade "Michigan Left Turn" intersections. "Michigan Left Turn" intersections would require traffic exiting an intersecting street and planning to turn left across high-speed highway traffic to first turn right, merge across high-speed traffic, enter a left turn pocket in the median, perform a "U" turn on a crossover ramp located in the median, merge into high-speed traffic utilizing a center median acceleration pocket (Figure 13).

This alternative was examined in response to a letter from the public that encouraged speed reductions on the Richardson Highways and proposed this left-turn treatment at Dawson Road instead of a interchange. (USKH, 2004)

# Michigan Left-Turn or Crossover Alternative

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|---|---|

Left turn movements on and off the Richardson Highway were prohibited. Left turning traffic coming from Dawson Road turned right onto the Richardson Hwy then made a u-turn at a one-way crossover located in the median. Traffic crossing the highway allowed.

- No physical barrier prevented motorists from making left turns at the break in the median used for cross traffic.
- Created complexity that would likely confuse non-local drivers.
- Recommended for use on lower speed facilities (45 mph), not high-speed freeways, such as Richardson Highway.
- Did not support the long-term goal to eliminate at-grade intersections on the Richardson Highway.
- Reduced overall accidents by 20% to 25%.

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American Association of State Highway Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets, 2001 (GDHS) Page 712 to 715 provides operational and geometric discussion on this treatment. For this to work, the crossover ramp should be located 400 feet or more beyond main intersection, and the median must be 70 feet or wider. (USKH, 2004)

AASHTO states that drawbacks include complexity that may confuse the non-local driver; and added delay to the system. Often such intersections are used to remove heavy left-turn movements from at-grade signals. Signalization remains necessary for the through movements on the minor street to avoid high-speed conflicts with the main-street or highway. (USKH, 2004)

Accident reduction values for the continuous median with U-turn provisions (similar to this crossover) are found in Transportation and Land Development, 2nd Edition. This book cites a study prepared by the University of Florida entitled Operational and Safety Effects of Right-Turn plus U-turn –v- Direct Left Turn From a Driveway. This information is presented in Table 6-2 of the book, and shows reduction in rear-end, sideswipe, and angle accidents when right–turn/U-turn channelization is implemented over a direct left-turn. Rear end collisions are reduced by 13%, sideswipe by 20%, and angle by 24% over the direct movement. (USKH, 2004)

This alternative was not advanced for further consideration for the following reasons:

- The median would need to be widened to accommodate double-tanker truck traffic.
- This intersection is so complex it confuses non-local drivers.
- The crossover ramp should be located 400 feet or more beyond main intersection.
- The intersection increased traffic delays.
- The intersection was suitable for low speed (30 to 45 mph), high-volume arterial roads, not high speed highways.
- Signalization was necessary for the through movements on the minor street to avoid high-speed conflicts with the main-street or highway.
- Overall accidents would be only be reduced by 20 to 25%, not the 60% reduction by grade separated interchanges.

## 3.3 BUILD ALTERNATIVE

The Dawson Road Interchange build alternative would replace the existing at-grade intersection with a grade-separated interchange at Richardson Highway and Dawson Road. The Richardson Highway would be raised over Dawson Road on a bridge. Interchange ramp intersections would be t controlled by a traffic signal. Dawson Road would be extended south to Laurance Road. Mistletoe Drive would be extended from Donner Drive to Dawson Road completing the frontage road from Mission Road to Laurance Road. This alternative retains the existing right-turn-in and right-turn-out and eliminates left turn and cross traffic at the Fifth Avenue/Mission Road and the Laurance Road intersections with the Richardson Highway.

The build alternative interchange would separate the high-speed traffic from the slower cross traffic. Separation of traffic would eliminate vehicles moving at high-speed from "T-boning" into the side of slower traffic. The interchange ramp intersections are designed to handle double tanker trailers, school buses, and private vehicles. Larger vehicles, with slow acceleration rates, would no longer delay turning and crossing traffic.

Eliminating high-risk left-turns and crossings would improve safety at the Fifth Avenue-Mission Road intersection and at the Laurance Road intersection. The proposed changes would reduce the number of at-grade crossings along the Richardson Highway.

Paths for bicycles or pedestrians would include six-foot wide shoulders on the new segment of Mistletoe Drive. A separated bicycle path would be constructed parallel to Dawson Road between the Richardson Highway and Laurance Road, when funding becomes available.

When funding allows, the build alternative would construct a Richardson Highway undercrossing, allowing local traffic to pass under the highway between Fifth Avenue and Mission Road. This underpass increases inter-community connectivity. It eliminates Richardson Highway access to and from the Fifth Avenue and Mission Road intersection in order to reduce the high rate of right angle accidents at this location. Access to and from the Richardson Highway would be moved to Badger Road and Dawson Road interchanges where it would be much safer. A one-way frontage road from Mission Road to the Badger off-ramp would be required.

When funding allows, a one-way westbound frontage road would be added between Mission Road and the Badger Road off-ramp. This would eliminate the traffic entering the Richardson Highway at Mission Road and it would provide an outlet for platted subdivision roads and thereby reduce the through traffic on Doughchee Avenue.

A one-way frontage road from Mission Road to Badger Road would provide relief to Doughchee Avenue, allowing the subdivision platted and partially developed adjacent to Doughchee to access Badger Road without having to drive Doughchee Avenue. The one-way frontage road would provide a more direct alternate for travel to Badger Road.

## 4.0 ENVIRONMENTAL CONSEQUENCES

The environmental consequence section discusses existing environment, the no-build alternative including the anticipated changes in the reasonably foreseeable future, the impacts of the build alternative and any mitigation measures, conditions, permits, and authorizations that would be required.

### 4.1 RIGHT OF WAY

#### 4.1.1 Existing Environment

The four-lane Richardson Highway was built to bypass the north side of the City of North Pole around 40 years ago. Right-of-way was acquired in the 1960's, and 1980's and included a set aside for interchange facilities at Dawson Road intersection, Laurance Road intersection, Mistletoe Drive frontage road, and St. Nicholas Drive frontage road. The right-of-way is 300-feet in width, approximately 150-feet on either side of centerline. A section line easement was platted as an extension of Dawson Road to Laurance Road, but has not yet been constructed.

#### 4.1.2 No Build Alternative

The no-build alternative would not result in right-of-way acquisition. The lack of connection between Laurance Road and Dawson Road would continue for cars, bicycles and pedestrians. Refinery double tanker traffic would continue to enter and exit the highway on Laurance Road and both trucks and small vehicles would experience longer delays as traffic increases over time. Severe accidents would continue to occur with more frequency on the Richardson Highway.

#### 4.1.3 Build Alternative

The extension of Dawson Road to Laurance Road would be along a 66-foot wide section line easement. Additional right-of-way of 2.75 acres would be required to widen this right-of-way to 100-feet to extend Dawson Road to Laurance Road and provide for a separated bike path.

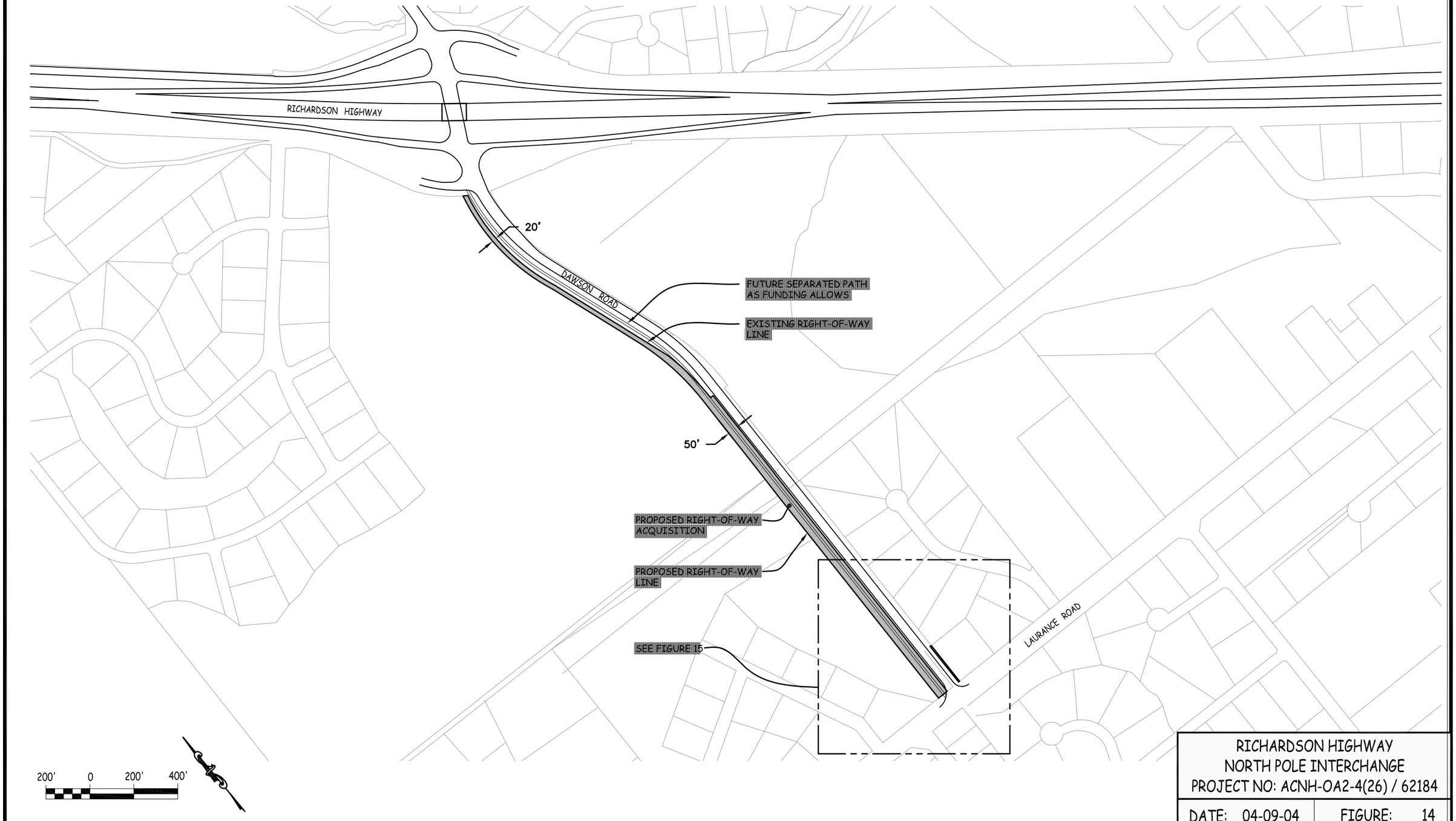
Right-of-way for an interchange at Dawson Road was acquired with the relocation of the Richardson Highway north of North Pole Alaska in the 1960's and in the 1980's. The proposed action would only acquire additional right-of-way at the southern extension of Dawson Road to Laurance Road. The additional 55 feet can be acquired without the relocation of any homes or businesses.

Although no relocations would result, the build alternative would require acquisition of property from the lots listed in Table4.

| Parcel | Subdivision | Status | Lot Size | Estimated Acquisition |
|---|---|---|---|---|
| 113280 | | Vacant Land | 81.6 acres | 1.38 acres |
| 481025 | Buzby | Home | 15 acres | 0.29 acres |
| 481033 | Buzby | Home | 7.6 acres | 1.05 acres |
| 182923 | Newby Road | Home | 1.15 acres | 0.03 acres |
| | | | Total | 2.75 acres |

**Table 4. Right-of-Way Impact**

# Right-of-Way Impacts




RICHARDSON HIGHWAY
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DATE: 04-09-04 | FIGURE: 14

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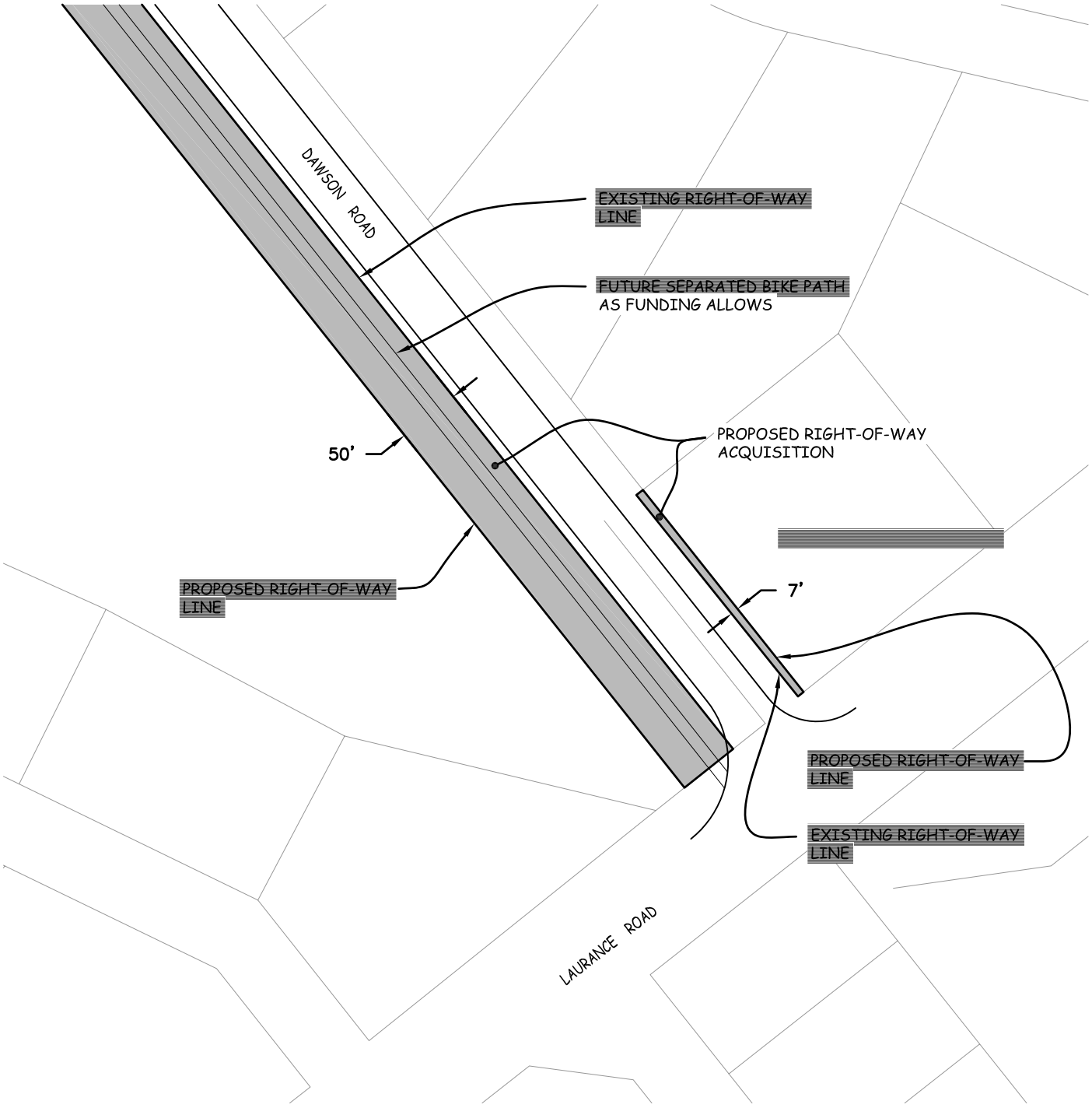
# Right-of-Way Impacts




60' 0 60' 120'

RICHARDSON HIGHWAY
NORTH POLE INTERCHANGE
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DATE: 04-09-04 | FIGURE: 15

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### 4.1.4 Mitigation

Right-of-way would be acquired under the Uniform Assistance and Real Property Acquisition Policies Act of 1970 as amended in1987 (Public Law 100-17)(Figures 15 & 16).

## 4.2 SOCIAL

### 4.2.1 Existing Environment

The North Pole community has grown rapidly and has expanded to encompass the Richardson Highway. Subdivisions have developed on both the north and south of the highway and they contain many parcels yet to receive homes. The north side population has grown to exceed that of the original community to the south (Figure 17). The population of the greater North Pole area is expected to increase by up to 55 or 60% over the next 20 years, according to research developed for the Fairbanks Metropolitan Area Transportation System "Long Range Transportation Plan" (in progress).

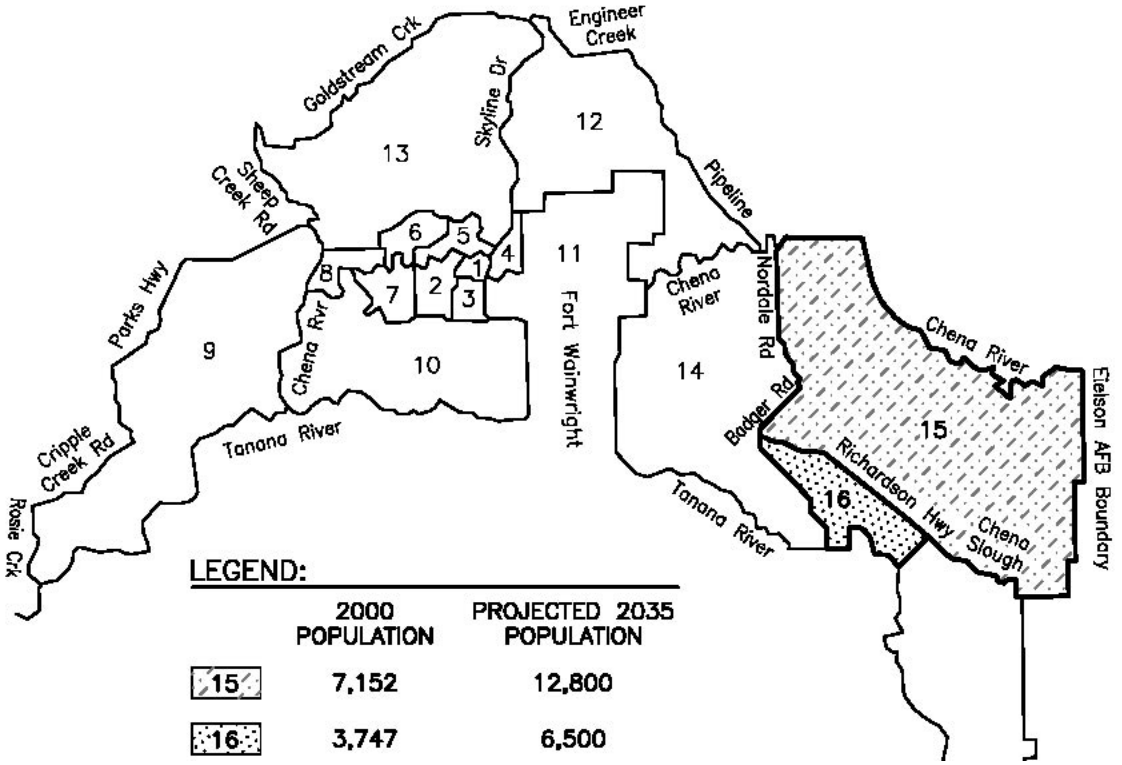



Figure 16. Population Forecasts 2000 - 2035

The Richardson Highway transects the expanding greater North Pole community. Inner-community connectivity has occurred during this growth through at-grade, non-signalized intersections.

The community is served by: the North Pole City Police Department, North Star Volunteer Fire Department and ambulance/emergency response, and a medical clinic. Community schools that draw students across the high speed Richardson Highway include: North Pole Elementary,

Middle, and High schools and the North Pole Leadership Academy on the south side of the highway, and the North Pole Christian School on the north side.

Churches adjacent to the project corridor include: Lord of Life Lutheran Church, St. Nicholas Catholic Church, First Baptist Church, and the New Jerusalem Church of God in Christ.

### 4.2.2 No Build Alternative

The no-build alternative would not modify traffic patterns. Cars, school buses, and double tanker truck traffic would continue to make left-hand-turns and cross high-speed traffic onto or from the Richardson Highway at these three intersections. School buses would continue to make the more hazardous move across high-speed traffic on the Richardson Highway. Severe accidents would occur more frequently as traffic volumes increase. Pedestrians and bicyclists become more and more vulnerable.

Originally the Richardson Highway was built to bypass the North Pole community. Over the years North Pole has grown around the Richardson Highway so that the highway transects the expanding greater North Pole community. Inner-community connectivity developed with the existing at-grade, non-signalized intersections. This transportation pattern would continue as the population moves into available space to the north.

Students, churchgoers, business patrons and emergency response vehicles would find it increasingly difficult to cross the high speed Richardson Highway, and pedestrian and bicyclists would find it nearly impossible. Mis-judgements of the time needed to maneuver into or across the highway would lead to an increase in severe accidents.

### 4.2.3 Build Alternative

The build alternative would change travel patterns by eliminating left-hand-turns and crossings of the Richardson Highway at the Fifth Avenue/Mission Road and Laurance Road intersections. Traffic would travel on Mistletoe Drive or St. Nicholas Drive frontage roads in order to cross the highway at either the proposed Dawson Road interchange or the existing Badger Road interchange.

Added travel would be required to access the Richardson Highway at either of the two interchanges, Badger Road and Dawson Road. Travel from Badger Road interchange to the Fifth Avenue/Mission Road intersection is about one-half mile. Travel from Fifth Avenue/Mission Road intersection to the proposed Dawson Road interchange is about two-thirds of a mile. Travel from Dawson Road to Laurance Road on Mistletoe Drive frontage road is about three-quarters of a mile.

The proposed action would allow right-turn-in and right-turn-out at Fifth Avenue/Mission Road and Laurance Road intersections with the Richardson Highway. The build alternative would eliminate through crossing and left-hand turns at Fifth Avenue/Mission Road and Laurance Road intersections.

North Pole Elementary, Middle andHighschools and the North Pole Leadership Academy are located south and west of the project corridor. Under the build alternative, school buses from the

residential areas to the north would cross the Richardson Highway on the Dawson or Badger interchanges. Buses would no longer make the more hazardous move across high-speed traffic on the Richardson Highway. Students walking or biking to school would also have safer passage at the interchanges.

As soon as funding allows, the proposal would provide an undercrossing for cross traffic and eliminate access to and from the Richardson Highway at the Fifth Avenue and Mission Road intersection. A one-way, westbound, frontage road would connect Mission Road to the Badger off-ramp. This would increase community connectivity and enhance safety but reduce direct access on and off the Richardson Highway at the Fith Avenue and Mission Road intersection.

#### 4.2.4 Mitigation

Since safety and connectivity are the primary social issues, and both would be served by the build alternative, no further mitigation is required.

## 4.3 ECONOMIC

#### 4.3.1 Existing Environment

The greater North Pole area is one of the most rapidly growing communities in Interior, Alaska. It has a mix of residential and commercial properties. Small businesses serve the local community and attract highway visitors. Badger Road Interchange supports commercial development on both sides of the highway, and there is a small commercial area north and east of Mission Road. Otherwise, most commercial development has occurred to the south, while their customers residing to the north are separated by the Richardson Highway.

North Pole is situated between two U.S. Military bases. Eielson Air Force Base is located about 10 miles east of North Pole. Fort Wainwright is located about 12 miles to the west. Military convoys utilize the Richardson Highway, and the Richardson Highway is a part of the strategic highway network (STRAHNET) designated by the U.S. Federal Highway Administration and the U.S. Department of Defense.

The local oil refining industry serves regional and statewide customers. Trucks servicing the oil industry deliver fuel from North Pole Refineries to the east (e.g.: Eielson Air Force Base, Delta, Fort Greely, and beyond) and to the west (e.g. Fairbanks). Trucks going to or from Eielson Air Force Base travel on Laurance Road to the Richardson Highway. These trucks make right-hand-turns onto the Richardson Highway and left-hand-turns off of the Richardson Highway.

Trucks delivering fuel to Fairbanks or points west enter and exit the Richardson Highway at the "12-Mile" intersection. They make right-hand-turns into North Pole and left-hand-turns leaving North Pole.

There are no neighborhoods, or sub communities with concentrations of minorities in or adjacent to the project corridor.

### 4.3.2 No Build Alternative

The no-build alternative would leave access as is to and from businesses adjacent to the project corridor. The frontage road segments along the project corridor would continue to be unconnected. As traffic increase it would become more risky to cross Richardson Highway traffic to access local businesses.

### 4.3.3 Build Alternative

The project would add infrastructure and better facilitate the traffic generated to and from the developing subdivisions, newly constructed homes, businesses, and community facilities by completing frontage road connections in the project corridor. Military STRAHNET traffic would be better facilitated by the build alternative. Oil refinery traffic would no longer have to travel across high-speed traffic to turn left onto Laurance Road.

The build alternative would alter travel to and from businesses in the project corridor. Customers may have to travel further to access businesses. Inner-community travel patterns would change because vehicles would access the frontage roads, Mistletoe Drive and St. Nicholas Drive, via Dawson Road and Badger Road interchanges. The project would not have a disproportionate effect on minorities or low-income populations.

### 4.3.4 Mitigation

Signage to direct traffic to businesses and service areas will be developed during final design, and will be in conformance with the manual on uniform traffic control devices.

## 4.4 LOCAL LAND USE AND TRANSPORTATION PLAN

### 4.4.1 Existing Environment

On June 7, 1984, the Fairbanks Metropolitan Area Transportation Study Policy committee (FMATS) passed a resolution supporting freeway designation of the Richardson Highway between Fairbanks and Eielson Air Force Base. In April of 1988, the DOT&PF published the Ester to Eielson Reconnaissance Report. The goal of the report was to establish a long-range plan that would allow development along the corridor in a manner compatible with the ultimate freeway concept.

Fairbanks North Star Borough, the local zoning authority, has established a mix of commercial, general commercial and residential zones around the highway corridor.

There is no protected farmland in the project corridor.

### 4.4.2 No Build Alternative

The no-build alternative does not support the long-term goal to eliminate at-grade crossings on the Richardson Highway and is inconsistent with local land use and transportation plans. The No-Build alternative is not responsive to local government resolutions, statewide voter, and legislative approval for a North Pole Interchange.

### 4.4.3 Build Alternative

The build alternative is consistent with the Fairbanks Metropolitan Area Transportation System (FMATS) endorsed restriction of at-grade intersections on the Richardson Highway. It is consistent with the local government resolutions, the Alaska Legislature's policy and the statewide voter approved transportation bond funding for a North Pole Interchange.

### 4.4.4 Mitigation

No mitigation is required.

## 4.5 HISTORIC PRESERVATION

### 4.5.1 Existing Environment

The Richardson Highway was built to bypass North Pole in the 1960's. New homes and businesses have been built outside the 300-foot wide right-of-way since the highway's construction. The project would not acquire any homes or structures outside the existing right-of-way. No historic or cultural resources are known to exist in the project corridor.

### 4.5.2 No Build Alternative

The no-build alternative would not affect any historically or culturally significant resources.

### 4.5.3 Build Alternative

Pursuant to Section 106 of the National Historic Preservation Act, the project corridor has been reviewed to determine if there are any sites on or eligible for listing on the National Register of Historic Places affected by this project. Because there are no eligible sites listed, the build alternative would not affect any historically or culturally significant resources.

### 4.5.4 Mitigation

No mitigation is required. Should any cultural, historic or archeological resources be discovered during the Contractor's operation the Contractor will cease operations in the area immediately and notify the Project Engineer. DOT&PF will then contact the State Historic Preservation Office to ensure compliance with the Alaska Historic Preservation Act and the National Historic Preservation Act.

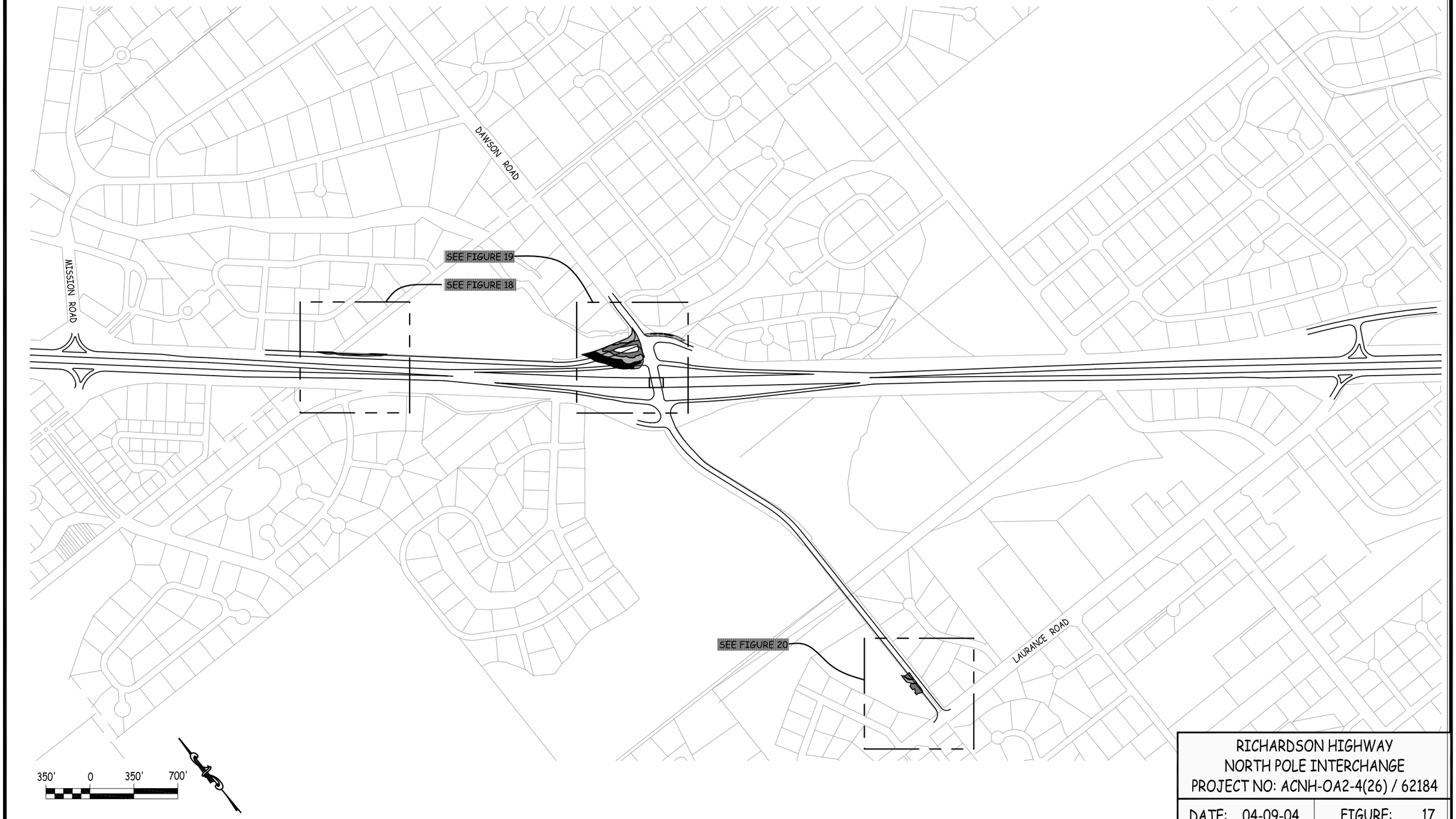
## 4.6 WETLANDS

### 4.6.1 Existing Environment

Three types of wetlands are found in the project corridor: emergent slough, riparian, and black spruce palustrine. Emergent wetlands include the open water and grasses of the slough. This is surrounded by a margin of felt-leafed willow riparian vegetation. There are a few slivers of black spruce palustrine wetlands. Most of the project corridor consists of birch and white spruce uplands.

Chena Slough once carried a large volume of water from the Tanana River to the Chena River. The flow between was blocked by the U.S. Army Corps of Engineers to reduce the flooding in

# Wetland Impacts Key Map

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# Wetland Impacts


LEGEND

- EMERGENT
- RIPARIAN
- BLACK SPRUCE

60' 0 60' 120'

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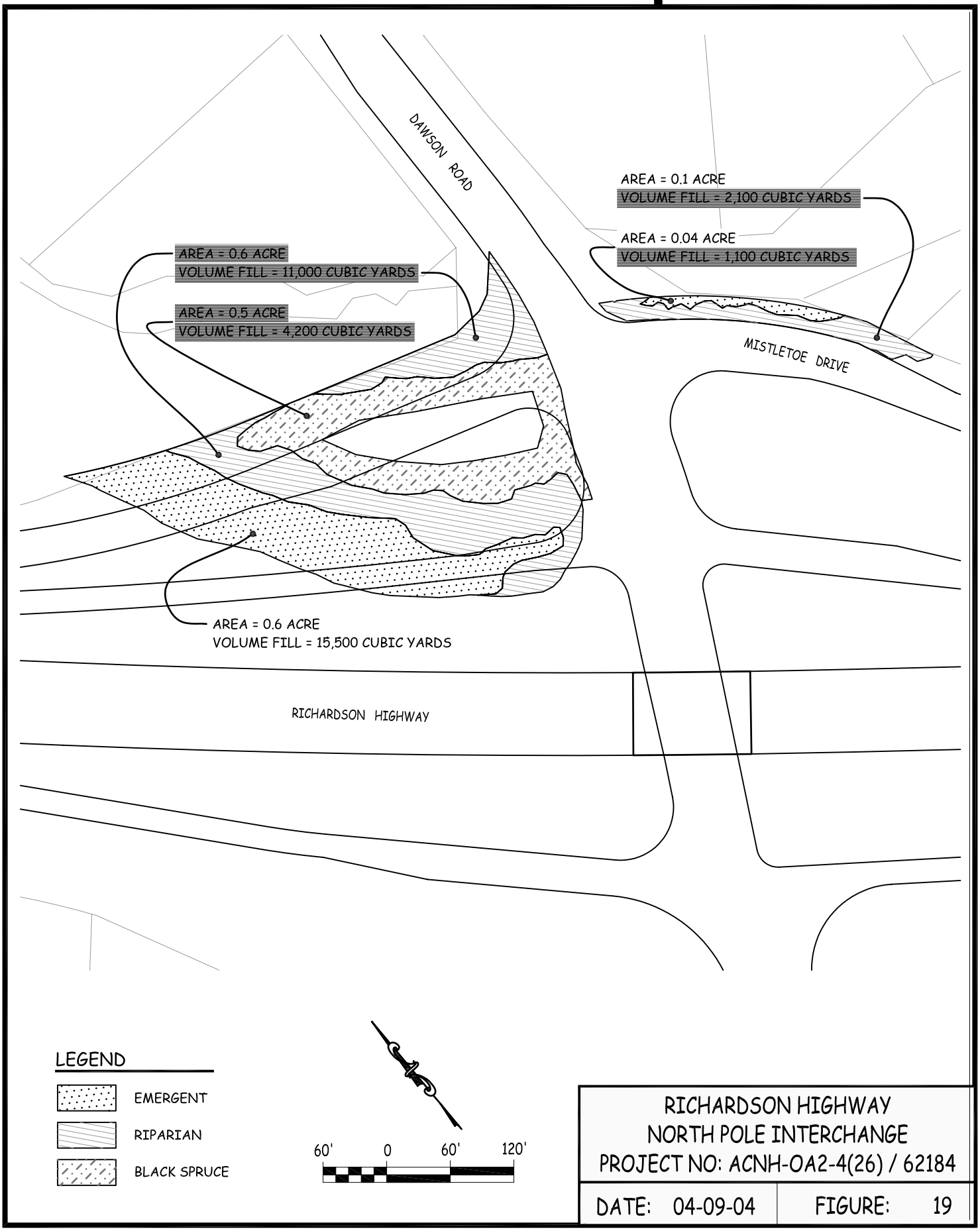
# Wetland Impacts




RICHARDSON HIGHWAY
NORTH POLE INTERCHANGE
PROJECT NO: ACNH-OA2-4(26) / 62184

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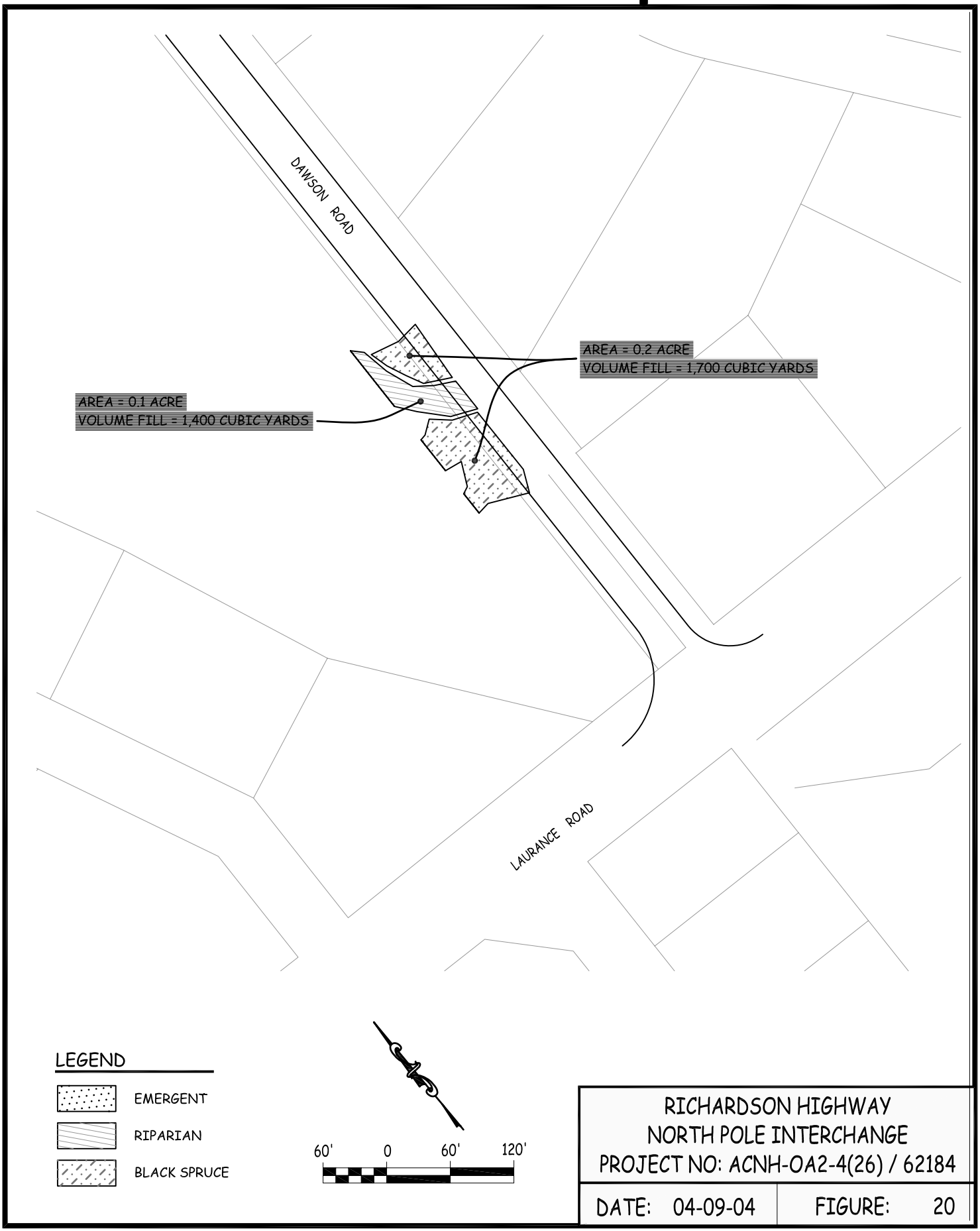
# Wetland Impacts

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NORTH POLE INTERCHANGE
PROJECT NO: ACNH-OA2-4(26) / 62184

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Fairbanks. The slough has a low-volume flow that is unable to erode the channel and transport the mud and vegetation in the slough and has developed as an emergent wetland. Over time the slough has collected sediment that filters out, settling in the channel. Eventually the slough will fill up, and the vegetation will become uplands habitat.

### 4.6.2 No Build Alternative

The no-build alternative would not impact wetlands. Sedimentation would continue to fill the Chena Slough.

### 4.6.3 Build Alternative

The Build alternative would place approximately 35,000 cubic yards of fill onto 2.2 acres of wetlands in three separate areas. The areas are shown in Figures 18 through 21 and are at the new section of Mistletoe Drive and the southernmost end of the extension of Dawson Road to Laurance Road.

The extension of Mistletoe Drive frontage road from Mission Road to Dawson Road would place approximately 32,000 cubic yards of fill on 1.9 acres of estuarine, riparian, and black spruce palustrine wetlands in a side channel of Chena Slough.

The extension of Dawson Road south to Laurance Road would follow the cleared section line through spruce and birch forested uplands. A small ditch or mostly dry slough drainage crosses the existing driveways and proposed extension at the intersection with Laurance Road. Extending Dawson Road would place approximately 3,100 cubic yards of fill on 0.3 acres of riparian wetlands. A culvert is also likely to be necessary at the southern end of Dawson Road close to Laurance Road

| **Mistletoe Drive crossing Chena Slough** | **Acreage** | **Fill** |
|---|---|---|
| Riverine emergent wetlands, open water and grass | 0.6 acres | 15,500 c. y. |
| Riparian wetlands, Felt-leaf willow, sedges and grasses. | 0.6 acres | 11,000 c. y. |
| Black spruce palustrine wetlands, with willows. | 0.5 acres | 4,200 c. y. |
| | | |
| **Mistletoe Drive Extension** | | |
| Old slough willow & sedges | 0.2 acres | 867 |
| | | |
| **Dawson to Laurance** | **Acreage** | **Fill** |
| Riparian wetlands,<br>Felt-leaf willow, sedges and grasses. | 0.1 acres | 1,400 c. y. |
| Black spruce palustrine wetlands. | 0.2 acres | 1,700 c. y. |
| **Project total** | **2.2 acres** | **34,667 c. y.** |

**Table 5. Wetlands Impacts**

### 4.6.4 Mitigation

Wetland classification was mapped with the use of air photos and field checked during the winter and spring. An U.S. Army Corps of Engineers (USACE) 404 wetlands permit would be required for this project. DOT&PF will document wetlands using the 1987 USACE manual. Minimization and mitigation measures would be developed in consultation with the USACE in the permit application process.

## 4.7 FISH AND WILDLIFE

### 4.7.1 Existing Environment

Chena Slough provides spawning habitat for grayling and sculpin. This upper section of Chena Slough is not listed as important to the migration, rearing or spawning of anadromous salmon (Department of Natural Resources, Office of Habitat Management and Permitting).

The forested habitat on either side of Chena Slough and the forest habitat where Dawson Road would be extended to Laurance Road are both likely to contain nesting habitat for migratory birds. Migratory birds (including nests and eggs) listed in 50 CFR 10.13 include, for Alaska, all native birds except grouse and ptarmigan.

### 4.7.2 No Build Alternative

The no-build alternative would not have an immediate impact on fish or wildlife. As the Chena Slough continues to drop its sediment load, the habitat will gradually change to favor upland species.

### 4.7.3 Build Alternative

Following coordination with the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS), DOT&PF determined that the build alternative would not impact essential fish habitat, as defined in the Magnuson-Stevens Act.

No eagle nests have been observed in the entire project area; however, other migratory birds may occur in the Mistletoe Drive to Dawson Road, and the Dawson Road extension to Laurance Road area.

### 4.7.4 Mitigation

To minimize any potential for impacts to migratory birds, the U. S. Fish and Wildlife Service (USF&WS) has indicated they are likely to request that the U.S. Army Corps of Engineers 404 Permit exclude clearing or fill-placement in wooded or undisturbed areas between May 15 and July 15. (Personal communication, Jim Zelenak, USF&WS, April 23, 2004.) ADOT&PF may propose additional solutions.

## 4.8 THREATENED AND ENDANGERED SPECIES

### 4.8.1 Existing Environment

There are no threatened or endangered species present within the project corridor.

### 4.8.2 No Build Alternative
The no-build alternative would not have an impact on threatened or endangered species.

### 4.8.3 Build Alternative
In consultation with the U.S. Fish and Wildlife Service, DOT&PF and FHWA have determined that the build alternative would not have an impact on listed threatened or endangered species.

### 4.8.4 Mitigation
No mitigation is required.

## 4.9 WATER BODY INVOLVEMENT

### 4.9.1 Existing Environment
Chena Slough passes under Dawson Road immediately north of the intersection with the Richardson Highway. It has a very low flow at this location and a large 9-foot diameter culvert. A smaller set of culverts is located to the south and connects a branch of the slough to the main slough.

The project corridor is not within a Coastal Zone.

### 4.9.2 No Build Alternative
The no-build alternative would not impact a waterbody. A portion of the Chena Slough has already filled in by sediment filtering out in the slow moving water, and has been abandoned as a water body. This natural process would continue.

### 4.9.3 Build Alternative
The preferred alternative would extend Mistletoe Drive frontage road from Donner Drive to Dawson Road. The new portion of the frontage road would cross an abandoned channel of Chena Slough. The crossing would result in excavation of mud and sediment, the placement of a culvert and the placement of fill across this portion of the slough. This portion of the slough is connected to the main slough by a 3-foot diameter culvert. The main channel of the slough is wider than the existing flow can keep free of vegetation and sediment. The proposed action would not alter the flow or overall habitat value of the slough.

### 4.9.4 Mitigation
In order to protect water quality, the following provisions must be adhered to:

- No refueling activities are permitted within 100’ of a water bodies.
- Fuel storage facilities will not be placed within 100’ of water bodies and will have a secondary containment with a holding capacity of at least 10% greater that of the largest independent fuel container.
- Hazardous material use, and storage, shall be in accordance with all State and Federal Regulations.

## 4.10 HAZARDOUS WASTE

### 4.10.1 Existing Environment

The project corridor includes land previously used for gas stations, and other fuel storage activities. A Phase I Environmental Site Assessment was conducted for the project in 2003 (see Appendix C). The environmental site assessment found that the, Fifth Avenue interchange concept location has the most known contaminated sites and spill sites in the immediate vicinity. The Dawson Road intersection has little or no potential for contamination as a result of right-of-way acquisition or construction of the proposed action.

### 4.10.2 No Build Alternative

The no-build alternative would not disturb soils. Existing contaminated soils would go unabated unless another individual or agency undertakes the cleanup. If contamination plumes are spreading, they would continue to do so.

### 4.10.3 Build Alternative

Based on the Phase I Environmental Site Assessments for the project the build alternative would not likely encounter hazardous waste (Appendix C).

### 4.10.4 Mitigation

The Project Engineer shall be notified immediately of any release of petroleum products, hazardous materials, or waste. Clean up, containment, and restoration activities shall be accordance with State and Federal regulations and the Project Engineer shall be notified of these activities.

## 4.11 AIR QUALITY

### 4.11.1 Existing Environment

The western portion of the City of North Pole is a carbon monoxide non-attainment area. The only part of this project within the air-quality non-attainment area is the portion of St. Nicholas Drive from Eighth Avenue to Santa Claus Lane (Figure 2).

### 4.11.2 No Build Alternative

The no-build alternative would increase delays as traffic increases. Because cars would sit idling at the intersections for a longer period of time the no-build alternative would decrease air quality.

### 4.11.3 Build Alternative

Delays associated with left turn movements and cross traffic at the Fifth Ave.-Mission Rd. and Laurance Road intersections would be eliminated. Air quality is expected to improve with the elimination of vehicles idling at these intersections. The build alternative would reduce delays and provide a minor benefit to local air quality. A qualitative analysis was conducted for the

project. The project conformity determination concluded that this project would not negatively impact local air quality (Appendix B).

#### 4.11.4 Mitigation
An air quality benefit does not require mitigation.

## 4.12 FLOODPLAIN

#### 4.12.1 Existing Environment
The project is in a flood plain area described as Zone X and is determined to be outside the 500-year floodplain, on the National Flood Insurance Program, Flood Insurance Rate Map (FIRM, Community Panel 025009-0225 G, January 2, 1992). It is protected from the 100-year flood by levee, dike, or other structures subject to possible failure or overtopping during larger floods. The Chena Flood Control Project dikes and structures protect the project corridor. The U.S. Army Corps of Engineers Chena Lakes Flood Control Project constitutes a regulatory floodway that is located east of the project (Figure 2).

#### 4.12.2 No Build Alternative
The no-build alternative would have no effect the regulatory floodway.

#### 4.12.3 Build Alternative
The build alternative would have no effect on the regulatory floodway.

#### 4.12.4 Mitigation
No mitigation is required.

## 4.13 NOISE

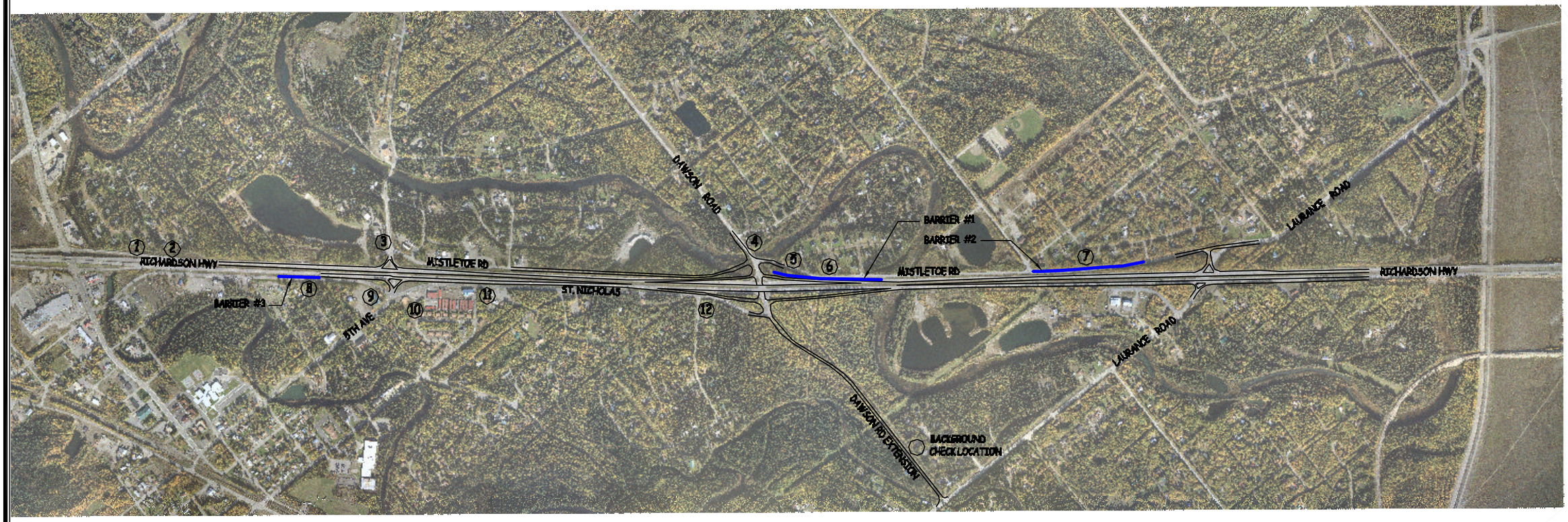
#### 4.13.1 Existing Environment
The North Pole community has grown up around the Richardson Highway, and many noise sensitive receivers, churches, residence, and businesses are along either side of the highway. In order to determine the volume of noise the sensitive receivers currently experience, thirteen typical sites were selected to obtain measurements for use in the Transportation Noise Model computer program. (FHWA Regulation 23 CFR 772).

| | |
|---|---|
| **Site 1 -** | North side of Richardson Highway, near Badger Road next to Mistletoe Road and behind gas station |
| **Site 2 -** | Subdivision behind gas station near Badger Road, along Mistletoe Road |
| **Site 3 -** | Rental housing parking lot along Mission Road |
| **Site 4 -** | North side of Richardson Highway, near intersection of Dawson Road and Mistletoe Road (frontage road) |
| **Site 5 -** | North side of Richardson Highway, near Dawson Road intersection approximately 3 houses north of location #6 along Mistletoe Road (frontage road) |
| **Site 6 -** | North side of Richardson Highway, near Dawson Road intersection along Mistletoe Road (frontage road) |
| **Site 7 -** | Subdivision near Laurence Road on north side of Richardson Highway (near North Pole Christian School) |
| **Site 8 -** | Near the RV park on the South side of Richardson Highway |
| **Site 9 -** | Baptist Church |
| **Site 10 -** | Northwest corner of the townhouse complex behind storage yard on south side of Richardson Highway |
| **Site 11 -** | Catholic Church |
| **Site 12 -** | Home near Dawson Road and Richardson Highway intersection on south side of the highway |
| **Site 13 -** | Home off of Buzby Road, near the proposed Dawson Road extension |

**Table 6 Sensitive Receivers**

The results of the model analysis shows that at current peak-hour traffic all thirteen typical location experience noise levels are well below the FHWA noise abatement criteria of 67 dBA for churches and residences, and 72 dBA for other developed areas, such as businesses.

# NOISE ABATEMENT




(#) NOISE MONITORING LOCATION

| RICHARDSON HIGHWAY<br>NORTH POLE INTERCHANGE<br>PROJECT NO: ACNH-0A2-4(26) / 62184 | |
|---|---|
| DATE: 04-09-04 | FIGURE: 21 |

U:\Hwy\62184 NP Overpass\Environmental\EA Graphics\arcbe - NOISE Jun 22, 2004

| No-build in dBA | |
|---|---|
| **Site** | **Existing 2002** |
| 1 | 56 |
| 2 | 59 |
| 3 | 55 |
| 4 | 55 |
| 5 | 61 |
| 6 | 62 |
| 7 | 62 |
| 8 | 62 |
| 9 | 59 |
| 10 | 56 |
| 11 | 58 |
| 12 | 58 |
| 13 | 43 |

**Table 7. Existing exterior noise levels at peak hour traffic.**

4.13.2 No Build Alternative

Noise will increase even if this project is not built, because traffic will increase over time. Using the computer model and the traffic increase projections to the year 2035, the noise at the same thirteen sites is predicted to rise to levels that exceed (65dBA) or approach (67dBA), FHWA's noise abatement criteria.

| No-Build Alternative in dBA | | |
|---|---|---|
| **Site** | **Existing** | **No Build (2035)** |
| 1 | 56 | 61 |
| 2 | 59 | 63 |
| 3 | 56 | 60 |
| 4 | 56 | 60 |
| **5** | 61 | **65** |
| **6** | 62 | **66** |
| **7** | 62 | **66** |
| **8** | 62 | **66** |
| 9 | 59 | 63 |
| 10 | 57 | 61 |
| 11 | 59 | 63 |
| 12 | 59 | 63 |
| 13 | 43 | 43 |

**Table 8. Existing and no-build projected noise levels at peak hour traffic**

When there is no project being developed FHWA does not require, and will not pay for, noise abatement. Under the no-build, noise would continue to increase, without abatement.

4.13.3 Build Alternative

The build alternative would have the same level of noise as the no-build for seven of the sites because there would be no construction changes. The noise level would decrease at one site, as traffic would be moved farther away, and five sites would experience an increase.

| Future Peak-Hour Noise Levels, In dBA | | |
|---|---|---|
| **Site** | **No Build (2035)** | **Build (2035)** |
| 1 | 61 | 61 |
| 2 | 63 | 61 |
| 3 | 60 | 61 |
| 4 | 60 | 61 |
| **5** | **65** | **65** |
| **6** | **66** | **66** |
| **7** | **66** | **67** |
| **8** | **66** | **66** |
| 9 | 63 | 63 |
| 10 | 61 | 61 |
| 11 | 63 | 63 |
| 12 | 59 | 64 |
| 13 | 43 | 51 |

**Table 9. No-build and Build alternative noise levels for 2035.**

Three sites approach the noise abatement criteria: site 5 at 65 dBA, site 6 at 66 dBA, and site 8 at 66 dBA. One site meets the noise abatement criteria, site 7 at 67 dBA .

When noise predictions approach the noise abatement criteria (65 dBA) or exceed 67 dBA, noise abatement must be considered. Noise barriers were modeled to determine whether noise levels could be reduced by at least 5 dBA, and whether they were cost-effective. DOT&PF considered $25,000 a reasonable cost per receiver benefited.

Site 8 is a business and RV Park that may depend on visibility from Richardson Highway to attract visitors. The park's visibility may be more important than traffic noise. If a noise wall is not wanted, it would not be constructed.

Noise Barrier Calculations – 2035 Peak-Hour Noise Levels (dBA)

| Receiver Location | No Mitigation | 8-foot Barrier | 9-foot Barrier | 10-foot Barrier | 11-foot Barrier | 12-foot Barrier | 13-foot Barrier | 14-foot Barrier |
|---|---|---|---|---|---|---|---|---|
| **Barrier 1: South of Receiver 6** | | | | | | | | |
| 5 | 65 | 61 | 61 | 60 | 60 | 60 | 60 | 60 |
| 6 | 66 | 61 | 61 | 61 | 61 | 61 | 61 | 60 |
| **Barrier 2: South of Receiver 7** | | | | | | | | |
| 7 | 67 | 59 | 58 | 58 | 57 | 56 | 56 | 55 |
| **Barrier 3: North of Receiver 8** | | | | | | | | |
| 8 | 66 | 62 | 62 | 61 | 61 | 61 | 61 | 61 |

Source: CH2M HILL

**Table 10. Noise Barrier Analysis for 2035 Peak-Hour Noise Levels (dBA)**

A 10-foot high noise barrier would effectively reduce noise levels by 5 dBA at sites 5 and 6. An 8-foot high barrier would reduce noise by 8 dBA at site 7. A 10-foot high barrier would reduce noise by 5 dBA at site 8.

Barrier Cost Analysis

| Number of Benefited Residences[1] | Barrier Length (feet) | Barrier Area (sq. ft) | Total Barrier Cost | Cost per Benefited Residence[1] |
|---|---|---|---|---|
| **Barrier 1[2]** | | | | |
| 11 | 1,202 | 10,512 | $262,800 | $23,900 |
| **Barrier 2** | | | | |
| 7 | 1,412 | 11,296 | $282,400 | $40,300 |
| **Barrier 3** | | | | |
| 1 | 489 | 4,888 | $122,200 | $122,200 |

Based on ADOT&PF recommendation, barrier construction costs are assumed to be $25 per square foot.

1 A benefited residence is defined as any residential unit being provided a noise reduction of 5 dBA or more by the barrier regardless of whether the unit exceeds the FHWA Noise Abatement Criteria.

2 Barrier 1 is a variable height unit that is 8-feet high at one end and 10-feet high at the other.

**Table 11. Noise barrier cost analysis**

### 4.13.4 Mitigation

DOT&PF will provide a noise barrier at site 5-6 providing the residents want a barrier. This would be determined by the local government providing written documentation to that effect, as required by the ADOT&PF Noise Abatement Policy criteria 6(B).

## 4.14 WATER QUALITY

### 4.14.1 Existing Environment

Chena Slough is on the Alaska Department of Environmental Conservation's (ADEC) impaired waterbody list. It has been on the "Section 303(d) list for petroleum products and sediment since 1994. Based on best professional judgement of ADEC's Fairbanks Office this waterbody should be listed for petroleum products." (ADEC official website, 2004).

Based on discussions with the "Friends of Chena Slough," the Department of Natural Resources, Office of Habitat Management and Permitting (OHMP), and the U.S. Army Corps of Engineers, Regulatory Branch, the water quality issues causing concerns in Chena Slough are largely located in the core North Pole area downstream from the project.

### 4.14.2 No Build Alternative

The no-build alternative would have no impact on water quality. The slough will continue to silt up, water-dependent vegetation will eventually decrease and be replaced by upland vegetation species. Habitat will change.

### 4.14.3 Build Alternative

Discussions with the U.S. Army Corps of Engineers, Department of Natural Resources Office of Habitat Management and Permitting, Friends of Chena Slough, U.S. Fish & Wildlife Service, and Fairbanks North Star Borough Planning staff indicated that minimizing sediment and runoff into the slough was a concern.

The build alternative does not propose any storm drains, curb and gutter or other drainage structures, other than a continuation of the culvert at Dawson Avenue, that could direct water to Chena Slough, an impaired waterbody.

### 4.14.4 Mitigation

As a part of the minimization of impacts to wetlands and associated waters of the U.S., the contractor would be required to develop and file a Storm Water Pollution Prevention Plan with the U.S. Environmental Protection Agency and the Alaska Department of Environmental Conservation. Sediment runoff would be controlled by the use of silt fencing. The Department would require the contractor to spread topsoil and re-seed the embankments to prevent and reduce erosion of sediment.

## 4.15 PERMITS AND AUTHORIZATIONS

### 4.15.1 Existing Environment

There are no permits currently in effect.

### 4.15.2 No Build Alternative

The no-build alternative would not require any permits or authorizations.

### 4.15.3 Build Alternative

Construction of the build alternative would require the following permits:

- U.S. Army Corps of Engineers wetlands permit authorized under section 404 of the Clean-Water Act
- Alaska Department of Environmental Conservation state water quality certification authorized under section 401 of the Clean-Water Act
- U.S. Environmental Protection Agency National Pollution Discharge Elimination System (NPDES) construction/stormwater permit as authorized under section 402 of the Clean-Water Act.
- DNR OHMP Title 41 fish passage culvert installation permit.

### 4.15.4 Mitigation

Mitigation measure will be determined by the agency with jurisdiction as a permit requirement.

## 4.16 CONSTRUCTION

### 4.16.1 Existing Environment

There is currently no construction underway.

### 4.16.2 No Build Alternative

The no-build alternative would not result in construction impacts.

### 4.16.3 Build Alternative

There would be temporary impacts during the construction activity. These are generally short-term in nature. Impacts include minor air quality degradation (increased dust), traffic delays, increased traffic on local streets used as detours (official and unofficial detours), construction related noise, and inconvenience to businesses. There would be traffic delays for through traffic on the Richardson Highway and cross highway traffic

Affects to businesses during construction would vary depending on the proximity of the business to the construction and the type of construction at the time. Destination type businesses should experience the least impact during construction because those customers are heading to that specific business. Convenience businesses would be affected the most since customers generally choose that business because they are driving by it or for the ease of access. These types of businesses would likely experience some loss of customers when construction activity is active at that location

### 4.16.4 Mitigation

Contract specification would require the contract to water or use other methods to control construction related dust. The contract specification would require the contractor to develop and receive DOT&PF approval of a traffic control plan (TCP). The TCP would address detours and access to adjacent businesses.

The Contractor's TCP would address access to all business directly affected by construction related disturbance.

## 5.0 Summary

### 5.1 IMPACTS

#### 5.1.1 Right-of-way
Additional right-of-way of 2.75 acres would be required to widen the right-of-way from 66-feet to 100-feet wide to extend Dawson Road to Laurance Road and provide for a separated bike path.

#### 5.1.2 Social
The build alternative would change travel patterns by eliminating left-hand-turns and crossings of the Richardson Highway at the Fifth Avenue/Mission Road and Laurance Road intersections. Added travel would be required to access the Richardson Highway at either of the two interchanges, Badger Road and Dawson Road.

#### 5.1.3 Economic
The project would add infrastructure and better facilitate the traffic generated to and from the developing subdivisions, newly constructed homes, businesses, and community facilities by completing frontage road connections in the project corridor. Military STRAHNET traffic would be better facilitated by the build alternative. Oil refinery traffic would no longer have to travel across high-speed traffic at Laurance Road.

#### 5.1.4 Local Land Use and Transportation Plan
The build alternative is consistent with the Fairbanks Metropolitan Area Transportation System (FMATS) endorsed restriction of at-grade intersections on the Richardson Highway. It is consistent with the local government resolutions, the Alaska Legislature's policy and the statewide voter approved transportation bond funding for a North Pole Interchange.

#### 5.1.5 Historic Preservation
Pursuant to Section 106 of the National Historic Preservation Act, the project corridor has been reviewed to determine if there are any sites on or eligible for listing on the National Register of Historic Places affected by this project. Because there are no eligible sites listed, the build alternative would not affect any historically or culturally significant resources.

#### 5.1.6 Wetlands
The Build alternative would place approximately 35,000 cubic yards of fill onto 2.2 acres of wetlands in three separate areas.

#### 5.1.7 Fish and Wildlife
The build alternative would not impact essential fish habitat. No eagle nests have been observed in the entire project area; however, other migratory birds may occur along the Mistletoe Drive to Dawson Road extension, and the Dawson Road extension to Laurance Road area.

#### 5.1.8 Threatened and Endangered Species
The build alternative would not have an impact on listed threatened or endangered species.

### 5.1.9 Water Body Involvement

The preferred alternative would extend Mistletoe Drive frontage road from Donner Drive to Dawson Road. The new portion of the frontage road would cross an abandoned channel of Chena Slough. The crossing would result in excavation of mud and sediment, the placement of a culvert and the placement of fill across this portion of the slough. This portion of the slough is connected to the main slough by a 3-foot diameter culvert.

### 5.1.10 Hazardous Waste

The build alternative would not likely encounter hazardous waste.

### 5.1.11 Air Quality

The build alternative would reduce delays and provide a minor benefit to local air quality.

### 5.1.12 Floodplain

The build alternative would have no effect on the regulatory floodway.

### 5.1.13 Noise

DOT&PF will provide a noise barrier along Mistletoe Drive west of Dawson Road (site 6) providing the residents want a barrier and the local government provides written documentation to that effect.

### 5.1.14 Water Quality

Best Management Practices will be developed to minimize or prevent sedimentation of Chena Slough.

## 5.2 MITIGATION

### 5.2.1 Right-of-way

Right-of-way would be acquired under the Uniform Assistance and Real Property Acquisition Policies Act of 1970 as amended in1987 (Public Law 100-17)(Figures 15 & 16).

### 5.2.2 Social

Since safety and connectivity are the primary social issues, and both would be served by the build alternative, no further mitigation is required.

### 5.2.3 Economic

Signage to direct traffic to businesses and service areas will be developed during final design, and will be in conformance with the manual on uniform traffic control devices.

### 5.2.4 Local Land Use and Transportation Plan

No mitigation is required.

### 5.2.5 Historic Preservation

No mitigation is required. Should any cultural, historic or archeological resources be discovered during the Contractor's operation the Contractor will cease operations in the area immediately

and notify the Project Engineer. DOT&PF will then contact the State Historic Preservation Office to ensure compliance with the Alaska Historic Preservation Act and the National Historic Preservation Act.

### 5.2.6 Wetlands

Wetland classification was mapped with the use of air photos and field checked during the winter and spring. An U.S. Army Corps of Engineers (USACE) 404 wetlands permit would be required for this project. DOT&PF will document wetlands using the 1987 USACE manual. Minimization and mitigation measures would be developed in consultation with the USACE in the permit application process.

### 5.2.7 Fish and Wildlife

To minimize any potential for impacts to migratory birds, the U. S. Fish and Wildlife Service (USF&WS) has indicated they are likely to request that the U.S. Army Corps of Engineers 404 Permit exclude clearing or fill-placement in wooded or undisturbed areas between May 15 and July 15. (Personal communication, Jim Zelenak, USF&WS, April 23, 2004.) ADOT&PF may propose additional solutions.

### 5.2.8 Threatened and Endangered Species

No mitigation is required.

### 5.2.9 Water Body Involvement

In order to protect water quality, the following provisions must be adhered to:

- No refueling activities are permitted within 100' of a water bodies.
- Fuel storage facilities will not be placed within 100' of water bodies and will have a secondary containment with a holding capacity of at least 10% greater that of the largest independent fuel container.
- Hazardous material use, and storage, shall be in accordance with all State and Federal Regulations.

### 5.2.10 Hazardous Waste

The Project Engineer shall be notified immediately of any release of petroleum products, hazardous materials, or waste. Clean up, containment, and restoration activities shall be accordance with State and Federal regulations and the Project Engineer shall be notified of these activities.

### 5.2.11 Air Quality

An air quality benefit does not require mitigation.

### 5.2.12 Floodplain

No mitigation is required.

### 5.2.13 Noise

DOT&PF will provide a noise barrier at site 6 providing the residents want a barrier. This would be determined by the local government providing written documentation to that effect, as required by the Noise Abatement Policy criteria 6.(B).

### 5.2.14 Water Quality

As a part of the minimization of impacts to wetlands and associated waters of the U.S., the contractor would be required to develop and file a Storm Water Pollution Prevention Plan with the U.S. Environmental Protection Agency and the Alaska Department of Environmental Conservation. Sediment runoff would be controlled by the use of silt fencing. The Department would require the contractor to spread topsoil and re-seed the embankments to prevent and reduce erosion of sediment.

## 5.3 PERMITS REQUIRED

Construction of the build alternative would require the following permits:

- U.S. Army Corps of Engineers wetlands permit authorized under section 404 of the Clean-Water Act
- Alaska Department of Environmental Conservation state water quality certification authorized under section 401 of the Clean-Water Act
- U.S. Environmental Protection Agency National Pollution Discharge Elimination System (NPDES) construction/stormwater permit as authorized under section 402 of the Clean-Water Act.
- DNR OHMP Title 41 fish passage culvert installation permit.

## 5.4 CONTRACT CONDITIONS

The contract for this project will include an Erosion and Sediment Control Plan that the contractor will use to develop his Sediment and Wastewater Pollution Prevention Plan (SWPPP). The contract will specify the seed mix for use in the erosion control plan. The contract will detail the mitigation measures listed above and those further identified in the permit process in an environmental commitment summary. The contract will also require the contractor to submit a traffic and dust control plan for approval by the Department.

## 5.5 PRELIMINARY FINDINGS

None of the impacts are considered significant.

## 6.0 CONSULTATION AND COORDINATION

A public involvement MOA with City of North Pole and Fairbanks North Star Borough kept these entities involved in decision-making, public involvement, and progress of the project.

A scoping letter was mailed to permitting and resource agencies on February 26, 2004 describing the project and potential impacts. Written responses and emails are included in Appendix C.

To facilitate agency consultation DOT&PF met or discussed the project with:

- Christie Everett, U.S. Army Corps of Engineers
- Nancy Ihlenfeldt, DNR, Office of Habitat Management and Permitting
- Elaine Mayer, U.S. Fish and Wildlife Service
- Jerry Norum, "Friends of Chena Slough,"
- Missy Corrigan, Fairbanks Soil & Water Conservation District
- Max Lyon, Director, Fairbanks North Star Borough, Transportation Department, Air Quality
- Todd Boyce, FNSB, Community Planning Department
- Misha Vakoc, U.S. Environmental Protection Agency (EPA), Water Quality, Impaired Waterbody
- Wayne Elson, EPA, Air Quality
- Barbara Shepherd, Alaska Department of Environmental Conservation (ADEC), Air Quality
- Joan Hardesty, Alaska Department of Environmental Conservation (ADEC), Air Quality

Follow-up telephone calls and meeting results are summarized in the appropriate environmental section above.

## 7.0 PUBLIC COMMENT

The public involvement for this project included the following public comment opportunities in the NEPA process:

- Open House on Concepts, September 23, 2003.
- Invitation to church parish meeting at the St. Nicholas Catholic Church, December, 2003.
- Invitation to the Church Council meeting at the Lord of Light Lutheran Church, December 10, 2003.
- Open House on Alternatives, February 26, 2004.
- Invitation to church parish meeting at the St. Nicholas Catholic Church, March 10, 2004.
- Follow-up meeting requested by residents of Enterprise Park. March 11, 2004.

ADOT&PF mailed out newsletters, notices in the City of North Pole newsletter, notices in the City utility bills, and advertisements in the local Fairbanks Daily News-Miner. Copies of these notices and copies of the written comments are found in Appendix E.

### 7.1 PUBLIC COMMENTS

Most comments related to improving safety and accident reduction. Some citizens recommended slowing down traffic, with signals or by posting a lower speed limit.

*Response: The Richardson Highway is classified as an urban interstate in the project area. The primary purpose of this type of facility is to efficiently carry through traffic. For this reason, the long-range plan for the Richardson Highway is to eliminate at-grade crossings. Traffic signals would delay through traffic and increase accidents, not necessarily reduce speeds.*

Citizens also expressed concern about providing or maintaining access to and from businesses, residences, schools, cross-streets and the Chena Lakes Recreation Area on the north end of Laurance Road.

*Response: Several alternatives were considered to identify the preferred alternative which best improves safety by eliminating accident prone turn maneuvers and maximizes access to and from the Richardson Highway. As with any interchange project on a controlled-access facility, adverse travel would increase for some users and access is provided to adjacent properties on frontage roads.*

Comments indicate that the proposal should accommodate double tanker trucks transporting fuel to and from the refineries in North Pole.

*Response: The interchange and all associated roads are designed so that double tanker trucks can turn safely at intersections. Right-in/right-out turns would be allowed at Laurance Road, Mission/Fifth Avenue, and the Richardson Highway. If funding allows, an undercrossing at the Fifth/Mission intersection would be constructed to allow traffic to pass under the Richardson Highway and would eliminate right-in/right-out at the Fifth/Mission and Richardson Highway intersection.*

Comments indicate that the project should provide for emergency vehicles.

*Response: North Star Fire Department is located on the north end of Dawson Road so actually their travel time would decrease when exiting onto the Richardson Highway. The Dawson extension to Laurance Road would also improve access to residences along Laurance Road south of the Richardson Highway.*

Comments requested pedestrian and non-motorized vehicle facilities within the project corridor.

*Response: The interchange would have two, ten-foot wide paths on each side of the road under the bridge. The new frontage road segment on Mistletoe Drive would have six-foot wide shoulders. The extension of Dawson Road to Laurance Road would have 8-foot shoulders. If funding allows in the future, a separated path can be constructed parallel to Dawson Road south of the Richardson Highway and under the undercrossing at Fifth and Mission Road. Also, if funding allows, existing four-foot shoulders on frontage roads can be widened to eight-foot wide shoulders.*

The project should minimize impacts to private property by limiting right-of-way impacts, noise, and increased traffic nearby.

*Response: Only 2.7 acres of land would be acquired and no residences or businesses would need to be relocated.*

The project should minimize impacts to local businesses by maximizing visibility and minimizing adverse travel.

*Response: Businesses would continue to be accessed via frontage and collector roads that connect to the Richardson Highway. Traffic and associated noise would increase, but not above levels normal to this type of facility. Adverse travel is minimized by locating the new interchange about half way between the existing Badger Road interchange and the Chena Flood Control project near Laurance Road.*